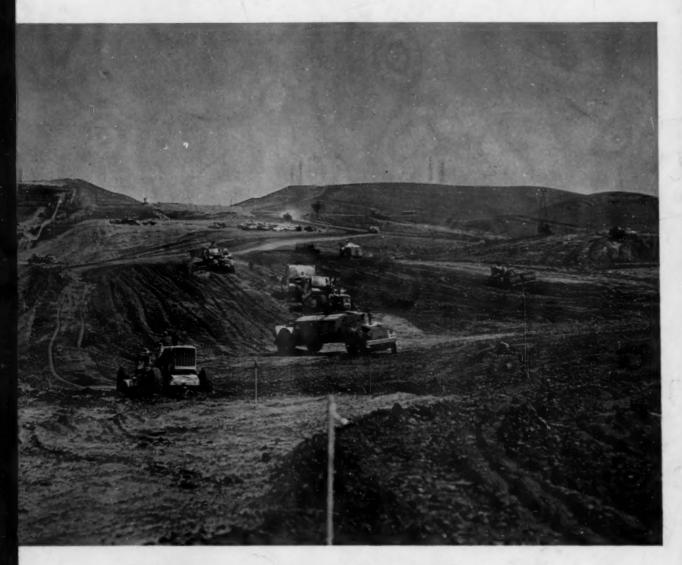
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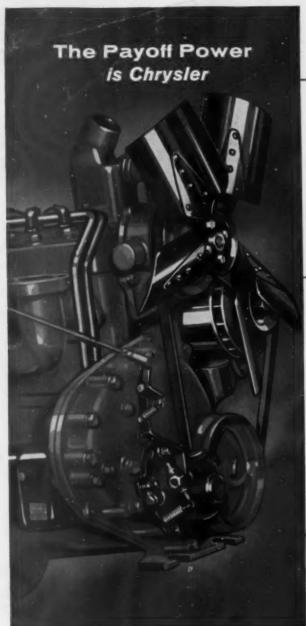
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Placing dirt from 9.7 million cubic yard "Big Cut" (page 51)
... No-steel design proposed for prestressed concrete pavement ... Lime stabilization on Interstate project ... Spoils politics disrupts a highway department ... Contractor's novel winter overhauling shop.

July 1957





Scoop...



CHRYSLER INDUSTRIAL 33, in-line 6 Engine (265 cu. in. displacement) powers the Model C Scoopmobile—and many other makes of equipment in the construction and materials handling fields. There are four Chrysler in-line 6s, two V-8s—ranging from 230 to 354 cu. inch displacement. For detailed information about Chrysler Industrial Power write: Dept. G7, Industrial Engine Division, Chrysler Corporation, Detroit 31, Michigan.



Here's a real "quick change" artist—the Model C Scoopmobile! Nine different attachments—all of which can be changed and operated by

one man—give it exceptional on-the-job versatility. Single tail wheel provides greater maneuverability—especially in close quarters. Chrysler Power gives it extra guts and stamina—at lower operating and maintenance cost.

Chrysler INDUSTRIAL ENGINES

INDUSTRIAL ENGINE DIVISION . CHRYSLER CORPORATION

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Field joints in *minutes*with Beth-Cu-Loy pipe

Pipe made of Beth-Cu-Loy is pipe made of galvanized, corrugated copper-bearing steel. That means the pipe is strong, durable, flexible. It also means easy and rapid couplings. In fact, Beth-Cu-Loy joints can be assembled in the field in a matter of minutes.

With Beth-Cu-Loy, mechanical field joints are used. A corrugated coupling band overlaps and nests into the corrugations in the abutting ends of the pipe sections. A crescent wrench and C-clamp are usually the only tools needed to make a joint which will be both tight yet flexible.

Flexibility, incidentally, is another important advantage of Beth-Cu-Loy drainage pipe. It permits the pipe to flex with the fill, absorb vibration and impact, as well as the shifting actions of weather changes.

The copper in Beth-Cu-Loy adds to the stout corrosion-resistance initially provided by the heavy zinc coating. You can be sure that pipe fabricated from Beth-Cu-Loy will give long, trouble-free service.

Bethlehem manufactures the galvanized corrugated sheet stock used by fabricators of culverts and drainage pipe. If you would like to have the names of those who can supply pipe made from this long-lasting, versatile steel, just call the nearest Bethlehem office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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ROADS AND STREETS

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Quarry site for road job pays unique "bonus"

Winter Concreting 96

A GILLETTE PUBLICATION

Our backlog includes outstanding reports on many subjects of importance to contractors and engineers: How to get the most out of your scrapers . . . Producing seven aggregates simultaneously at 450 tons per hour . . . More reports on bridge design trends. . .

Dump body delivery helps concrete third lane under traffic . . . All-electric asphalt plant, "cleanest ever" . . . Another cost analysis by Geo. E. Deatherage. . .

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Aluminum: new role in highway design . . . Design of supports for Interstate road signs . . . New rock excavation series planned.

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SECOND ONLY TO THE PANAMA CANAL in earth-moving magnitude, this 8½-million-yard cut created a canyon 1,370 feet wide and 350 feet deep at San Francisco's Carquinez crossing. Although much rock was encountered, blasting was kept to a minimum and rippers and scrapers helped keep the pace close to 30,000 yards per two-shift day! Goodyear 3-T Nylon Cord HARD ROCK LUG tires took this tough rap in stride.

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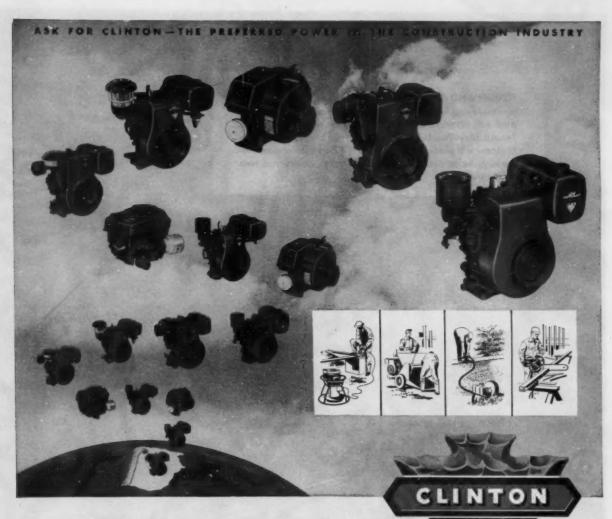
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The P&H Model 155A is the most versatile machine you can buy in the ½ cu. yd. class! Whether it be hoe, shovel or crane, changeovers are made quickly with the P&H exclusive drum arrangement. Independent swing and propel, another P&H exclusive, mean simultaneous motions for easier, simpler performance.

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These twelve features make the Remington TG4 Power Trowel by Mall the most advanced on the market. Hundreds of contractors already know it as the finest performing, easiest to handle, most versatile gasoline driven troweling machine they have ever used. Here are the twelve features. Compare them with other makes!

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- Safety throttle control. Release handle and ring stops, engine idles. No stalling—no restarting necessary.
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13



Ideas For Earth

TWIN-POWER SETS NEW Gives production ON SCORES OF JOBS not offered by



New "Euc" has struck capacity of 24 yds.

This Model TS-24 is Euclid's latest development in Twin-Power Scrapers. It has a struck capacity of 24 yds. and 32 yds. heaped at 1:1 slope. Tractor is powered by 300 h.p. engine with 3-speed Torqmatic

Drive. The rear axle is driven by a 218 h.p. engine with separate torque converter and semi-automatic Rush Job Finished transmission. Hydraulic steering provides full 90° turns. Tires are 27.00 x 33 standard with 33.5 x 33 optional. Top speed with full payload is 26 mph. using standard size

Pipeline Padding Costs Reduced More than 50%

ARIZONA - Western Pipe Line, Inc. of Austin, Texas is laying 245 miles of 34" pipe across northern Arizona and a 141 mile connection of 20" pipe to Phoenix. It's a tough job across sugged terrain and requires equipment that can take steep grades and rough going.

The pipe must be protected with a 6" blanket of selected materialabout one yard of dirt per lineal yard of pipe. Two "Twin" Scrapers have been working on the padding operations hauling material from 1200 ft. to several miles over grades as much as 39%. The contractor reports that the production and work-ability of these scrapers have cut padding costs in half as compared with former methods used.

4 Months Ahead of Schedule

SOUTH DAKOTA-J. H. Beckman Construction Co. of Sioux Falls was awarded a grading contract for 6.8 miles of U.S. Route 16 that involved 360,500 yds. and had to be completed in 6 months. Four Euclid Twin-Power Scrapers, supplemented by 3 other scrapers, some crawler equipment and 3 motor graders, were put on the job and worked 11 hour shifts six days a week.

Because of their Twin-Power and all-wheel drive, the "Euca" worked independently without assistance from pusher tractors. On one cut they self-loaded 20 bank yards of gumbo and shale in about 45 seconds - completed the 870 ft. haul cycle over cut and fill in an average of 2.83 minutes. Hourly production was 353 yards. Self-loading sand and top soil in another cut the Euclids averaged 21.6 yards in less than a minute. The complete 600 ft. cycle took about 2½ minutes and hourly production averaged 415 bank yards.

With these versatile, fast dirt-movers on the job, grading was completed far ahead of the rush schedule.

Versatility Pays Off at Noxon Rapids

MONTANA - Two Twin-Power Euclid Scrapers are being used by Morrison-Knudsen Co., Inc. at Noxon Rapids Hydro-electric Project on the Clark Fork River in Western Montana. They are building roads, helping with excavation at the dam site and supplementing a large fleet of other Euclid hauling equipment.

Working in heavy wet clay or in sand and gravel the "Twins" pick up loads of 18 yds. or more without help from pusher tractors. With big single tires and all-wheel drive, they work in soft and rutted areas and have plenty of power to move heaped loads over long hauls at fast travel speed.

Owner says "Euc" Twin-Power Scrapers have revolutionized dirt moving in the West

SOUTH DAKOTA — Harris Construction Co. moved 1,000,000 yds. of shale for a railroad relocation job at Mowbridge with only 6 scrapers one motor grader and one roller. That's probably as small a spread of equipment as you'll ever find on a project of this size yet production averaged 13,000 yds. per 10-hour shift. Cycle time on a 1600 ft. haul was about 4 minutes . . . each "Twin" averaging 225 yds. per hour. Owner Ken Harris has found the Twin-Power Scraper the most

nour. Owner Ken Harris has found the Twin-Power Scraper the most efficient dirt mover he's ever used and this railroad job wasn't the first time he had parlayed Twin-Powerintolowcost high production. In April of 1956, Harris set a new earthmoving record on Montana highway work by moving 90 000.

highway work by moving 90,000 yds. on hauls up to 4000 ft. during six 10-hour shifts. At the same time he was working on the road job, Harris had a 1,200,000 yd. subcontract at Glasgow Air Base, 26 miles away. He moved his "one man earthmoving crews" from one job to another according to weather conditions and work requirements. The "Eucs" were used to the best advantage all the time because there was only an hour's travel time involved and they worked in-dependent of pusher tractors nor-mally needed by scrapers for efficient operation.

3 Million Yard Waste Dump Moved by "Twins"

ONTARIO, CANADA — Moving an old waste dump from a drained lake bed presented a tough problem for Steep Rock Iron Mines, Ltd. The material, consisting of wet silt, low grade ore, stone and boulders, was eavy-about 3200 lbs. per yard. Hauling conditions were difficult because of the soft, spongy footing so it seemed that the job would have to be truck-shovel operation. In spite of these adverse conditions, a Twin-Power Scraper was demonstrated on a haul of 5800 ft. round trip with grades up to 10%. Performance was so outstanding that four machines were purchased and are now effecting major savings on an almost "impossible" soraper job.

Twins Tackle Tough Road Job

VIRGINIA - Contractor Robert T. Main used a Twin Scraper and TC-12 Crawler in a highway cut that had stopped other scrapers because of the extremely soft footing. This combination of Euclid "Twins" had plenty of power, traction and flotation to get the job done efficiently—it replaced a dragline that was brought in when it looked like the job couldn't be done by scrapers.

movers

TWIN EDITION

RECORDS

and cost advantages any other equipment



Improved Model of "World's Most Powerful Crawler"

Euclid's Model TC-12 Twin Crawler now has more horsepower, more track area and more accessibility than any other production tractor. It is powered by two 218 h.p. engines with separate Torqmatic Drives for each track—a total of 436 h.p.! Standard shoes are 27" wide and there are now 8 track rollers to give still better balance with heavy duty attachments.

Ten "Twins" Move Nearly 40,000 Yds. Per Day

NEBRASKA — Western Contracting Corp. of Sioux City, Iowa, used 10 "Twin" Scrapers and 5 Euclid TC-12 Crawlers to move 3 million yards on a plant site grading project with a 5 month completion limit. Equipped with 6 yard sideboards and push loaded by the big "Twin" Crawlers to get maximum production, the scraper fleet worked 20 hours a day and moved close to 40,000 yds. daily on hauls of 1500 feet.

This leading contractor's belief that Euclid Twin-Power is tops for low cost earthmoving is backed by lots of previous experience on high production jobs. At Ft. Randall Dam they used a fleet of 30 Model LLD 50-ton Rear-Dumps powered by two 300 h.p. engines. For a 7 million yd. Indiana Turnpike contract Western purchased 15 Twin Scrapers and 5 Model TC-12 Euclid Scrapers. After finishing this big job, part of the Twin fleet was assigned to Oahe Dam while others tackled a highway project in Michigan. This well-known contractor is so "sold" on Euclid Twin-Power Scrapers and Crawlers that estimates and bids are made on the basis of the low cost produc-

tion that "Twins" provide.

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Couldn't Believe His Own Stop-Watch

Iowa — When a contractor-visitor to Wilbur Nielsen's road grading job made a time check on 3 Twin-Power Scrapers he sent to town for another stop-watch because he couldn't believe the time registered on the one he'd used!

registered on the one he'd used!
The "Twins", equipped with 6 yd. sideboards and push loaded by a torque converter crawler tractor, got loads of better than 24 yds. in an average of 50 seconds. In spite of the mile and a half long haul, the three scrapers averaged 336 yds. per hour. Working 10½ hour shifts six days a week, with an availability record of 95%, Nielsen's "Eucs" completed the grading well ahead of schedule.

"TWINS" are making making headline headline news!

Twin-Powered Euclid Equipment is out-performing all other equipment by a wide margin — the profit margin — on all kinds of earthmoving. With "Twins" in your fleet you'll have a bidding advantage that can pay off in more jobs and more profit. Get the facts from your Euclid dealer and you'll know why owners everywhere have proved Euclids are your best investment.



EUCLID DIVISION
GENERAL MOTORS CORPORATION
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PRY-ACTION BREAK Gets you jobs other

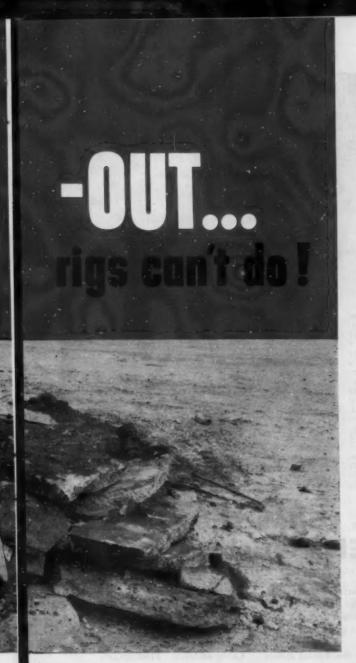


This new 3-yd. TD-18 Four-in-One Skid-Shavel proved able to do as much as 3 power shavels and a dragline—excavating and loading up to 1,700 lineal feet of old concrete pavement daily—aperating for Henry E. Berghuis, Prinsberg, Minn.

Street-widening and regrading calls for removing old concrete pavement—which the new TD-9 Skid-Shovel is loading out at 600 cu yds per day! Dennis Widmer, Portland, Oregon, owns this outfit with the job-getting break-out power!







Thirty-six times as fast as 3 men and a jack-hammer could do it—this TD-14 broke-up, dug-out, and loaded 180 lineal feet of old one-by-four-foot concrete wall, in only 4 hours! Owner: Anderson Trucking and Excavating, Inc. Buffalo, N. Y.





Pry-action break-out force ranges from 12,000 lbs. on the International Drott TD-6 Four-In-One Skid-Shovel—to 27,000 lbs. on the TD-18 model. For special applications like land-clearing, the TD-18 model can be equipped with larger hydraulic cylinders to develop 54,000 lbs. of break-out!

Patented and exclusive International Drott pry-overshoe break-out action gives you up to six times as much excavating power as ordinary front-end loaders can deliver! Only an International Drott gives you this multiplied force of the scientific lever principle acting over big skid-shoes, and teamed with ground-level bucket roll-back. No other loader even has skid-shoes!

Only International Drott-developed reverse cylinder action produces the tremendous hydraulic power for pry-action break-out. And this pry-action principle shunts shock-stresses directly into the ground—so they can't maul loader or tractor.

Measure the job-getting, capacity-adding advantages of exclusive triple-power, pry-action break-out. Note how exclusive parallelogram raise action keeps the bucket level, all the way up-reduces spillage-increases your daily yardage up to 18%! Prove that exclusive, shock-swallowing Hydro-Spring protects equipment, adds operator comfort. And try the exclusive International Drott Four-In-One that gives you four-machine utility for one moderate investment—in your choice of four sizes, one-yard to three-yard capacity. See your International Drott Construction Equipment Distributor for a demonstration.



A tough oak tree with 22-inch trunk is uprooted with the tremendous pry-action break-out—applied by TD-14 using grubber blade attachment, instead of bucket. Owner Lester H. Davis, Bennington, Vermont, is clearing farm land.

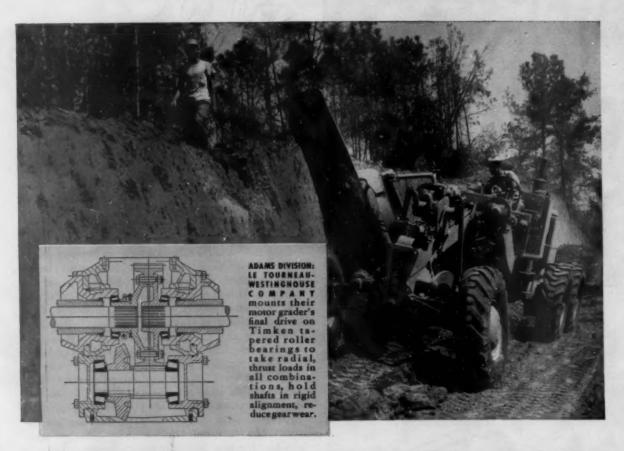
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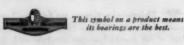
Makes the grade, takes the shocks with TIMKEN® bearings

A MOTOR grader must be tough! That's why this one, built by Adams Division, Le Tourneau-Westinghouse, has Timken® tapered roller bearings in 20 vital spots: front wheels, tandem axles, final drive, transmission and power box drive. There is no dissipation of power, with Timken bearings at work—because they practically eliminate friction, conserve power, boost machine efficiency! And Timken bearings, with their tapered construction, take radial and thrust loads in any combination.

This machine's work—bank sloping, ditch cutting, scarifying, subgrading, mixing, snow removal, etc. —sets up heavy shock loads. Timken bearing rollers and races are case carburized; hard surfaces resist wear, and tough cores take the heavy shock loads. Full line contact between rollers and races gives extra load-carrying capacity.

Maintenance on the Adams motor grader is greatly reduced, too. Timken bearings hold shafts in rigid alignment, let gears mesh easily, which means they last longer. And Timken bearings hold shafts concentric with housings, which makes closures more effective in sealing out dirt, dust, water, keeping lubricant in.

Geometrically designed to give true rolling motion, Timken bearings are precision-made to live up to their design. We even make our own steel, which no other American bearing manufacturer does. Always look for the trade-mark "TIMKEN" on every bearing! The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".





TIMKEN

TAPERED ROLLER BEARINGS ROLL THE LOAD

. for more details circle 311 on enclosed return postal card

ROADS AND STREETS, July, 1957

ROADS AND STREETS

Sixty-Five Years of Editorial Leadership

Washington News Letter



By Duane L. Cronk

July 10, 1957

The Indiana roads scandal was dragged by the heels to Washington last month for a national airing. Here, Senator Albert Gore's Subcommittee on Roads, in the best traditions of a Senate investigating committee, interrogated both the labor union leaders and Indiana highway officials involved in a get-rich-quick land deal. And in what has become the traditional response, the accused sought refuge in the Fifth Amendment. In other words, many questions, no answers.

The highway officials and carpenters union leaders allegedly came by nearly \$79,000 in a right-of-way deal. There was evidence that the union officials, acting on a tip from highway officials, purchased 10 parcels of land for a reasonable price and subsequently sold it to the state for a somewhat less reasonable price. The difference - about \$78,916 - was apparently divided between the "joint venturers."

However, the Indiana union officials carelessly made their pay-offs by check, a move that branded them as rank amateurs in such dealings. They almost lost their amateur standing in the hearings, however, where they claimed the Fifth Amendment with the most professional alacrity and thoroughness. To the dismay and irritation of the senators, one union official invoked the Fifth Amendment 64 times and another 32 times. Both swore, however, that they never used union funds for anything except "brotherhood business." The highway officials involved in this business for the brotherhood are under indictment.

The Bureau of Public Roads, in the meantime, has stationed one of its own men in each of the states to watch for just such transactions. Bertram Tallamy, federal highway administrator, took yet another step last month to safeguard federal funds involved, not only in right-of-way purchases but in construction. He established an entire new Project Examination Division to make "spot audits" of BPR and state operations.

No action is expected this year on proposals to extend the National System of Interstate and Defense Highways. The Senate Subcommittee on Roads last month recommended adding 7,000 miles to the 41,000-mile network and extending the federal highway program from 13 to 20 years. The committee voted, also to authorize \$15.4 billion more in federal aid to finance the increased construction. However, a Congress so energetically engaged in hacking away at budgets for the next 12 months is not likely to authorize expenditures for a period 13 years away.

(In Houston, Texas, delegates to the convention of the Western Association of State Highway Officials last month passed a resolution opposing "any proposed legislation" which would expand the system until funds have been made available to assure completion of the existing mileage.)

(continued on next page)

Money is still pouring into the Highway Trust Fund at a pace slightly faster than originally estimated. Created by Congress as the source of funds for the long-range National Highway Program, the Fund is definitely in the black. Receipts for the first 11 months came to \$1,342 million while payments to the states for roadbuilding have amounted to only \$845 million.

Income into the trust fund - from the new or additional highway user taxes - is expected to run ahead of the authorization for construction for about three years. After that - for probably 10 years - revenues are not expected to equal authorizations for new work and, unless the existing law is changed, the program must be cut down. This is the scheme Senator Byrd of Virginia insisted upon to make the road program truly pay-as-you-go. It will have the effect of stretching the road program from 13 years to 16 years, Federal Highway Administrator Bertram Tallamy testified recently.

* * *

The much-publicized cut in federal aid for airport construction will not really amount to much. And it will not jeopardize either current or future projects, according to H. H. Howell, director, office of airports for the Civil Aeronautics Administration.

Congress, in its economy drive, refused to appropriate all the funds CAA had requested, but Mr. Howell pointed out the money was for payment of obligations already incurred and will probably be obtained later on a supplemental appropriation when the din has died down.

The CAA is going right ahead with its 1958 construction program. Airport projects at 334 different locations have been approved for federal aid in the year starting July 1. Uncle Sam will contribute \$55 million for a wide range of work, much of it in runway extensions, aprons and resurfacing.

* * *

No drastic changes are in sight in the equipment depreciation allowances to be permitted contractors by Internal Revenue Service. IRS several months ago started revising its Bulletin F - the official guide for claiming depreciation on construction plant and equipment. It was announced that a "study" was being started and industry representatives were asked to submit their views. Few were forthcoming. The Associated General Contractors of America took the subject up with some of its members but there was no agreement upon what recommendations should be made to IRS. Most contractors, apparently, would rather work out modifications personally with the Service.

* * *

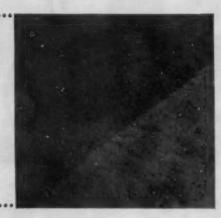
The only bid received for construction of the AASHO Test Road in Illinois has been turned down as too high. The contractor wanted \$6,622,514 for the "custom job." The estimated cost of this largest highway research project ever attempted has already jumped to \$20 million. Sponsors now hope they can cut the construction cost by splitting the work into separate phases. This most recent set-back will delay the running of trucks over the test pavements until late 1958.

The big test road will be composed of 836 separate test sections, each a different combination of pavement, base and subbase thickness. Half will be of portland cement concrete, half of asphaltic concrete. When it is completed, trucks with axle loads ranging from 2,000 lb. on the single axle to 48,000 lb. on a tandem axle, will run over the test road for two years.

How do rubber alloys answer the major seal coat problem?



80% more stone retained—that's the story on this direct comparison. In both photographs, the ordinary seal coat is on the right and the one made with RUBARITE/asphalt alloy is on the left. The seal coats were laid in borderline weather—ambient temperature of 55°-60° F. Photos were taken three weeks after laying and the same relative difference can be noted today—almost three years later.



WE think the photographs reproduced here tell the story very well. Excessive cover stone loss is the big problem with seal coats. And as you can see, asphalt cement, or cut-back, retains as much as 80% more stone when alloyed with RUBARITE.

RUBARITE is a powder of unvulcanized synthetic rubber combined with minute particles of a special carrier. This unique combination assures its easy handling, rapid mixing and thorough dispersion in the asphalt.

The action of RUBARITE in asphalt is to form a weblike structure which reinforces the bitumen. The net results are substantially increased adhesion, reduced susceptibility to heat, cold and oxidation plus improved toughness, flexibility and ductility.

In terms of seal coats, the alloying of asphalt with RUBARITE means a higher early strength and a much longer adhesive life. It also means construction in borderline weather, less concern for delays in placing the stone, mats up to twice the usual thickness, an earlier return of traffic plus the demonstrated high stone retention on a long-term basis.

Now, we don't hesitate to tell you that adding RUBARITE to a seal coat binder adds to its original cost. Neither do we hesitate to predict that the extra pennies per square yard will be returned, several times over, through less loss of stone and upwards of twice the life of nonrubberized coats. And we have the facts to back up our prediction. Why not get them, today? Just write to:

Rubarite, The Goodyear Tire & Rubber Company, Akron 16, Ohio.



... for more details circle 301 on enclosed return postal card ROADS AND STREETS, July, 1957 Rubarite-T. M. The Goodyear Tire & Bubber Company, Abron, Ohio

How a cost-beating, can "unbind"



A TD-24 starts and gets "ready to run," seconds-fast. Morning, noon, or any other time you shut down the TD-24's diesel engine, you restart in seconds—and save yard-moving, wage-costing minutes! Exclusive International gasoline-conversion diesel starting does it—and the combustion-heated engine is ready to run as a diesel, without "gumming the works" with raw fuel!

TD-24 Cerametallic engine clutch eliminates time loss and upkeep cost of temperature-sensitive, "service-nervous" type clutches! You get the simplicity of long-familiar clutch design. You get the operating ease, temperature-immunity, and power-transfer efficiency of International Cerametallic facings. You get the instant readiness to operate perfectly when cold—plus heat-defiance for clutch-mauling jobs like 'round-the-clock shuttle-dozing.

TD-24 on-the-go shifting is a "double-barreled" cycle-speeder. The exclusive TD-24 two-speed planetary system gives instant, stallpreventing Hi-Lo shifting without declutching, in either the Torque-Converter or Gear-Drive models. And in the Gear-Drive model, you get two-direction "no-stop" shifting with exclusive synchromesh transmission.

TD-24 exclusive Planet Power steering eliminates load-limiting "dead-track drag"—gives full-time "live" profit power on both tracks. It's more than total engine hp or weight that



cycle-speeding TD-24 your profit squeeze!



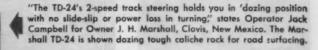
Flores and Perry, Laton, California, depend upon three International "75" Payscroper® units and a TD-24 Torque-Converter crawler—to fulfill their 8-mile grade-raising subcontract, on

Central Valley Highway south of Hanford. TD-24 push helps boil-in 20 cu yd heap-loads, in only 42 secondsl

counts—watch how "dead-track drag" limits any king-sized steering-clutch crawler to what it can handle on turns. Then watch how years-proved Planet Power steering gives the TD-24 full-time, both-track power—to pull or push extra-big loads on the turns or straight ahead, uphill or down!

TD-24 control ease puts record daily production at your operator's fingertips. Cool and safe flush-deck design, control-tower vision, and reach-easy fingertip controls all increase operator comfort and performance. Never before has big crawler work-power been so <u>load-responsive</u> —or record work-production so <u>easy</u> to achieve!

Prove positively your profit-margin widens—with geared-and-steered-for-action TD-24 power giving you the success-margin of push or pull! See your International Construction Equipment Distributor for a TD-24 demonstration!





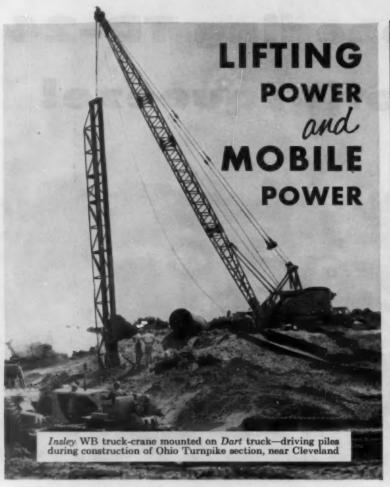


INTERNATIONAL' CONSTRUCTION EQUIPMENT

International Hervester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors...Self-Propelled Scrapers...Crawler and Rubber-Tired Loaders...Off-Highway Haulers...Diesel and Carbureted Engines...Motor Trucks...Farm Tractors and Equipment.

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WAUKESHA ENGINES



Waukesha 145-GK Gasoline—6-cyl., 5½ x 6-in., 779 cu. in., 216 hp @ 2000 rpm. Send for descriptive bulletin 1551.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

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LOS ANGELES

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Headlines

\$1 Billion Toll Road Project Volume in Present Year

In the welter of facts and figures that has been published recently on the status of the national highway program, little has been said about the role of toll road, bridge and tunnel projects in bolstering up the current road building volume.

The special four-page Washington News Letter in June Roads and Streets gave the first clear picture of the status of the highway program. However, this summary did not emphasize the part that toll project work is playing currently in the highway picture.

A memorandum to Roads and Streets, received from our Washington editor, Duane L. Cronk too late to publish in that News Letter, is as follows:

"The Bureau originally estimated that toll road building would be \$1.7 billion in 1956, thus completing the bulk of projects under way in that category, making a total of about \$5.4 billion in 1956 and leaving a big hole to be filled in 1957—presumably with completion of the national highway program.

• "However toll road projects were held up to the extent of \$700 million, and the Bureau's estimate of expenditures on toll roads came to only \$1 billion. This work uncompleted in 1956 will be completed, they believe, in 1957, making the estimate for toll road expenditures about \$1 billion in 1957 instead of the previously estimated \$2 or \$3 million.

"In other words, from hindsight we can see that, but for this shifting of toll road expenditures from 1956 to 1957, we would be having a decline in road building this year instead of an increase. If the Bureau's original estimate about toll road expenditures had come true, road building in 1956 would be \$5.4 or \$5.5 billion, and road building in 1957 \$5.1 billion.

"This is perhaps a very fortunate happenstance, because the toll work shifted to this year (1957) will pick up the lag in the highway program, and next year the program itself will probably be moving much faster."

(Continued on page 27)

The street

SPECIAL APPLICATION EQUIPMENT*

FOR ALLIED Jet Seal

MAKES SEALING FASTER AND EASIER

Allied Jet Seal application equipment is so compact that it can be completely contained on a flat bed truck and still allow room for a heavy duty compressor (1) and material storage (2). Since Allied Jet Seal is a two component seal there are separate component vats (3) which are painted for easy identification. The unit is equipped with an air actuated hoist (4) to pick up the drums and raise them over the vats for easy filling.

The two components are pumped from the vats with air pressure through the hoses and are mixed and proportioned in Allied's patented extrusion nozzle (5). This special nozzle applies the seal positively and neatly in the joint. The free swinging boom (6) keeps the hoses free and makes the application of the sealing compound a one-man operation with this equipment.

Since the entire Allied unit fits on one truck this equipment is completely portable making it extremely desirable for resealing work as well as new construction. Write for further details



The Allied-Stroud applicater is the only application equipment recommended for the placing of Allied Jet Seal.

MATERIALS CORP.

GENERAL OFFICES—

PRODUCERS, REFINERS AND COMPOUNDERS FOR OVER 25 YEARS

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ROADS AND STREETS, July, 1957



One of the 8-80 dumpers operated by Morse Sand & Gravel Company, Inc., of Attleboro, Mass.

two gravel-hauling dumpers supply 20 ready-mix trucks

"Our two Mack dumpers operate nine hours a day supplying gravel for our fleet of 20 ready-mix trucks. Averaging six round trips an hour over our own roads, these Macks have hauled over 350,000 tons in the last six months. Continuous operation of these two dumpers is vital to us. That's why we chose Macks...and they've more than lived up to their reputation. So far, we've had only routine mainte-

nance and service to contend with."
This is the experience of Mr.
Alfred H. Morse, president of
Morse Sand & Gravel.

Macks are universally acknowledged for their outstanding performance, operating economy and stamina. On-the-job operating reports, like Mr. Morse's, show why.

Want more proof? Let your Mack representative show you the

performance records of other Mack users in your area—operators who found out how much they can profit by using the best. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK first name for TRUCKS

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ROADS AND STREETS, July, 1957

Headlines

(Continued from page 24)

Pennsylvania Governor Wants New Turnpike Set-Up

Governor George M. Leader has asked the Pennsylvania legislature to abolish the Turnpike commission and replace it with an unsalaried board to serve as "conservators." In urging the action, the governor pointed to the obsolescence of toll roads in view of the expanded federal highway program. As proposed, the new board would:

(1) Provide the turnpike system with better management during its remaining life as a toll road; (2) give the system the benefit of non-political direction; (3) install a program of competitive bidding for the purchases and construction contracts of the system; (4) build proper defenses now against the possibility of future defaults on turnpike bonds; and (5) make the turnpike free of tolls at the earliest practicable date so that it can achieve its maximum usefulness as part of an integrated Interstate highway system for use of the people of the commonwealth and of the United States.

More Contractor Failures

Dun and Bradstreet recently reported the casualty list for construction contractors in 1956. The figure stands at 1,843 firms and individuals which were casualties in the price squeeze which has been going on for some time. Building contractors recorded an increase of 60% over last year and accounted for 708 of these failures. Non-building contractor failures increased 19% and recorded 96 failures. Subcontractors of all classes accounted for 1,030 failures—an increase of 17%.

The chief cause of failure apparently was "incompetence" which accounted for 40.8 percent.

Ask Notice of Road Plans

The Indiana State Senate has unanimously passed a bill requiring the State Highway Department to make public all road construction plans one year in advance of construction.

The purpose is to "tear away the veil of secrecy under which the highway department has operated in the past," to quote Sen. Matthew E. Welsh who introduced the bill.

because it <u>fits</u> more jobs...



the Cleveland 92 "Baby Digger" digs more trench ... in more places ... at less cost

THAT TREE LAWN is really narrow but the compact maneuverable 92 is doing a neat job of digging from driveway to driveway. The operator sets in and lifts out the digging wheel with speed and safety because the 92 gives him full job visibility and fast accurate boom hoist control. Synchronized wheel and conveyor speeds permit precision placement of spoil. No damage to curb, sidewalk or driveways either, thanks to the 92's perfect balance on long, smooth, non-clog crawlers—a real public relations asset.

- ★ Only 54" wide over crawlers
- ★ Digs 10" to 20" wide
- ★ Digs to 5' deep
- * Power-shift conveyor
- * Reversible discharge
- * Digs all soils
- * Digs in any weather
- * Portable, at legal limit speeds

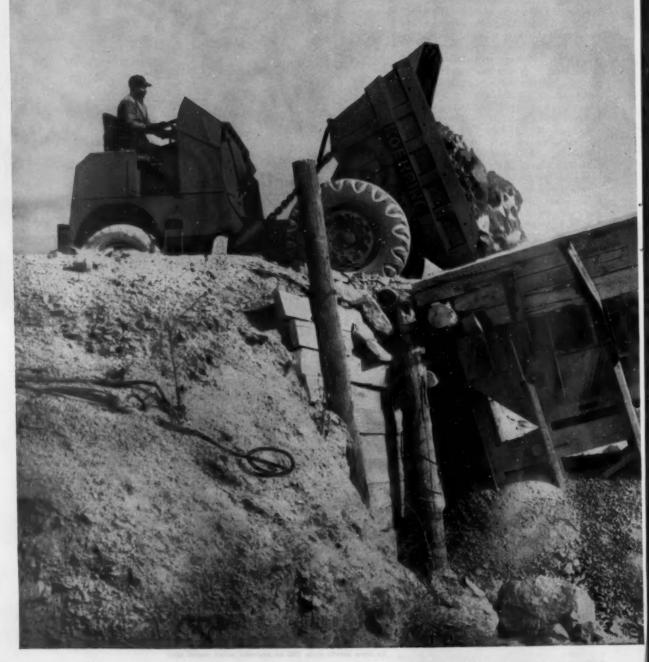
THE CLEVELAND TRENCHER CO.

20100 ST. CLAIR AVENUE . CLEVELAND 17, OHIO

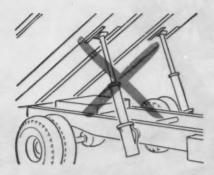


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GRAVITY dumps the load...in



ONE second



Koehring Dumptor® has no body hoist

O perator drives up, trips the body-release lever — and gravity tilts the 6-yard body 70 degrees. One second later the load is out, and Dumptor is on its way back for the next load. It's as simple and fast as that!

There's no 15 to 25-second wait for slow-acting body hoists — no expensive hoist replacement parts, maintenance or down-time. And, you get the same one-second dumping every time, under heaviest loads, in all temperature extremes, because Koehring gravity-dump never balks — never wears out.

One-second dumping earns a substantial increase in yardage output, too. For example — take a typical 1,000-foot haul where you would normally make 16 trips an hour. By saving an average of 20 seconds dump-time on each trip, Dumptor gains 320 seconds, or 5.3 minutes more productive haul-time per hour. You get 17½ trips, instead of 16. This, alone, adds 9% to hourly production.

This saving is typical of Koehring Dumptor's basic principle — to reduce all non-productive time to a minimum — to increase work-time for more yards per day. See Koehring distributor for complete information.

KOEHRING COMPANY

MILWAUKEE 16 WISCONSIN



Subsidiaries: JOHNSON PARSONS KWIK-MIX

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ROADS AND STREETS, July, 1957



Saves 20 seconds every time it dumps — Heaviest leads are dumped instantly. Tilting Dumptor body rolls on heavy-duty rockers. Snub chains attached to big shock absorbers check the body at approximately 70-degree tilt.



Shuttles back and forth without turning — Dumptor operates with equal ease in either direction. Constant-mesh transmission gives the same 3 travel speeds forward and reverse. Every turn eliminated cuts 15 seconds off cycle time.



64 square-foot loading target—Big, square body opening permits loading over either end or sides. Top edge and bottom are box-beam constructed. Sides, ends, heavily ribreinforced. 1/2"-thick kick-out pan bolts to floor for rock work.



Getting <u>more usable horsepower</u>

LINK-BELT SPEEDER machines have precision-made, heavier components to take this bonus engine power

To get an accurate gauge of shovelcrane work potential, it's important to make your comparisons on the basis of usable horsepower rather than engine size. Why? Because size for size, a Link-Belt Speeder delivers more usable power or line pull than other machines powered by the same make and model engine. And greater usable horsepower is bonus power that pays off in easier digging, faster cycles, more production and profits.

The variation in the amount of power a given engine actually makes available in the form of line pull (or power at the drums) is determined primarily by

the net horsepower the engine delivers at the output shaft. Engine Model X, for example, when run at 750 rpm, delivers 125 hp. At 950 rpm the same engine develops 150 hp!

What permits greater horsepower

Because the Link-Belt Speeder line is the industry's most advanced in design —17 new models—it incorporates the latest development in engineering, metallurgy and fabricating. As a result, every Link-Belt Speeder is an "extra strength" machine — a shovel-crane with the added guts and stamina to take full advantage of the bonus horse-

power available in each engine . . . at operating speeds well within the engine manufacturers' recommendations.

Only part of the story ...

More usable horsepower is but one of many reasons why Link-Belt Speeder machines are completely revising existing profit and production standards. Why not see how you, too, can take advantage of Link-Belt Speeder "years ahead design"... earn a bigger return on your shovel-crane dollars. Contact your Link-Belt Speeder distributor for details or write Link-Belt Speeder Corp., Cedar Rapids, Iowa.



3-point check on usable horsepower

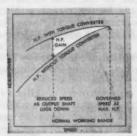
First check the engine manufacturer's "specs" to see what power the engine develops at various speeds. Then check the shovel-crane manufacturer's "specs" to see at what speed he'll actually set that engine. Third, check the shovel-crane itself. See if shafts, clutches, gears and other components have the size and strength to take full advantage of available engine power. Make these checks and you'll discover another sound reason why Link-Belt Speeders are engineered to earn a bigger return on your shovel-crane dollars.

Greater horsepower plus power hydraulic controls gives you speed with safety

With exclusive Speed-o-Matic power hydraulic controls, a Link-Belt Speeder uses oil under pressure to achieve perfect feel of the load under all conditions . . to eliminate the customary jerk, jump or lag found with air or mechanical controls. Proper pressure is maintained by an engine-driven pump through variable pressure valves. Oil pressure goes directly to hydraulic-actuated clutches. Response is smooth, fast and accurate.



from shovel-crane engines.....



For even more effective use of power

The horsepower gain charted at left is yours with a Link-Belt Speeder equipped with a matched engine torque converter package. Available for all models, torque converters cut digging shock, reduce fuel consumption, match power to the load and reduce engine stalls.

Less chance for end-of-the-shift letdown

Because oil under pressure does all the work, the operator merely needs to flick short-throw levers. He stays fresh and alert, is actually encouraged to push the machine to its high limit all shift long.



It's time to compare . . . with

LINK-BELT SPEEDER

Builders of a complete line of shovel-cranes . . . with exclusive Speed-o-Matic power hydraulic controls

. . for more details circle 287 on enclosed return postal card

ROADS AND STREETS, July, 1957

It's terrific but the easy reshoeing feature especially appeals to me!

THPG

HYDRAU-LIFT

The New Remarkable





PATENT NO. 2590210



Hydraulically operated. Driven from power take-off or electrically from truck battery.

Winchless operation saves up to 1000 lbs. and hundreds of dollars in cost.

Operated by one man who sees and controls all operations from a single position on the gooseneck.

Features permit new, fast, easy changing of trailer and truck tires.

No pins, no wedges, no fifth wheel RAMP.

Overhanging loads can be unloaded with new speed and ease. Simply raise the deck—put blocking under the load—lower the deck—detach the gooseneck and pull the trailer out. Here is the lighter, lower priced, faster detachable gooseneck that combines every wanted feature plus exclusive Rogers advantages.

The simplified new principle lowers the weight, reduces the cost and attains operating advantages heretofore unknown.

Its manifold advantages, some of which are mentioned briefly here, make it a most desirable unit for every hauler.

Write or phone for illustrated literature giving complete information.

EXPERIENCE builds 'em



ROGERS BROS. CORP.

ALBION, PENNA.

PERFORMANCE EXPORT OFFICE, 50 CHURCH ST., NEW YORK 7, N. Y., U.S.A. solls 'em Cable Address: BROSITES



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New Publications

Catalogs on Welding Research

Eight Catalogs of Technical Reports, listing all reports in the field of welding in the collection of the Office of Technical Services, .U S. Department of Commerce, have been published. OTS is the agency charged with collecting technical reports of Government-sponsored research and reproducing them for sale to the public.

The catalogs identify 1,000 reports on welding research and development, including a large number of German technical papers captured by the Allies during the Second World War. Reports listed are available either in printed form from OTS or in photocopy or microfilm from the Library of Congress.

CTR-324 Welding-Part I, Steel and Ferrous Alloys, 1932-57.

CTR-325 Welding—Part II, Aluminum and Magnesium, 1934-57. CTR-326 Welding—Part III, Mis-

cellaneous Metals, 1925-57. CTR-327 Welding—Part IV, Arc Welding, 1936-57.

CTR-328 Welding-Part V, Resistance Welding 1934-57

sistance Welding 1934-57. CTR-329 Welding—Part VI, Gas Welding, 1925-57.

CTR-330 Welding – Part VII, Electrodes and Equipment, 1926-57. CTR-331 Welding – Part VIII,

General Welding Methods, 1932-57.

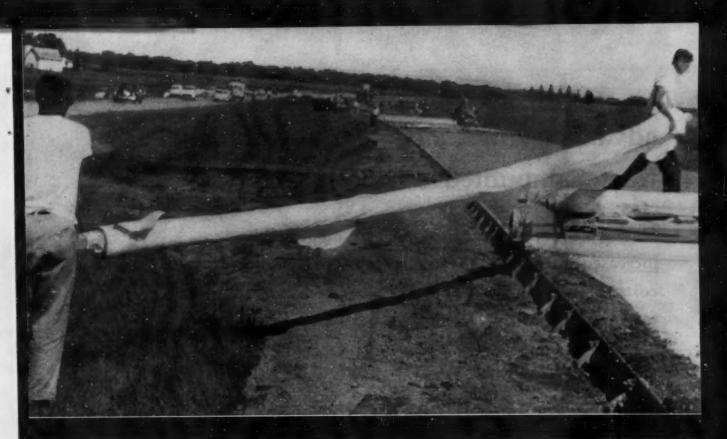
The catalogs may be ordered by CTR number at 10 cents each from OTS, U.S. Department of Commerce, Washington 25.

EXPRESSWAY LAW—AND ANALYSIS is the title of what many consider to be one of the most important documents in the recent publication program of the Highway Research Board. Known as Special Report No. 26, it is available at \$4.00 remitted to the Board at 2101 Constitution Avenue, Washington, D. C.

The report covers a Highway Laws Project study and contains an analysis of court decisions pertaining to the control of access and the current expressway legislation.

The first portion of the study deals with court decisions, prior to the enactment of modern expressway legislation, as it affects access control.

Also covered in the study is a (Continued on page 36)



Reduce labor costs with lightweight nonabsorbent reusable VISQUEEN film for curing blankets.

Slash curing costs, get better concrete, with white Opaque VISQUEEN film

Here's how you benefit when you cure concrete with VISQUEEN film:

- 1. Curing blanket costs you much less. Has been reused as many as 23 times.
- 2. Labor costs for curing are much lower because VISQUEEN film is so much lighter. 1000 square feet of 4 mil VISQUEEN film weigh less than 20 pounds.
- 3. VISQUEEN film is easier to handle—won't absorb water. Stays flexible in cold weather—will not shatter or run if punctured.
- **4.** Concrete cured under VISQUEEN film is stronger. State testing laboratory core tests prove VISQUEEN film surpasses reinforced paper 11 to 19 per cent.

For complete information, clip the request tag, attach to your letterhead, and mail.



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VISKING COMPANY

Division of Union Carbide Corporation

A leading producer of polyethylene sheeting and tubing.

P.O. Box 1410 TERRE HAUTE, INDIANA
In Canada: VISKING LIMITED, Lindsay, Ontario

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Introducing the greatest advancements made to date in tractor mounted backhoes

Sherman Products announces all new digger with increased output to speed digging and reduce costs. Many new features make this Model 54F faster with less maintenance and longer life

Holes in the Ground—that's what you are really buying when you purchase a backhoe. You aren't interested in a group of parts as such. You are interested in the capacity to dig holes at the lowest possible cost—so that you can sell those holes at a profit.

This means you need a fast, dependable digger with a long service life and low maintenance.

Now, Sherman presents an all new power digger that meets these requirements! It has advanced features that make it faster than any comparable backhoe . . . it is so sturdily constructed that it will outlast any comparable backhoe . . . it is so engineered that it requires less maintenance than any comparable backhoe.

Look over the list of Sherman features and you'll see for yourself.

Every single one of these features has been thoroughly tested. In actual digging in all types of soil conditions including hard, frozen clay and sticky gumbo, the Sherman completed 500,000 cycles—the equivalent of two years of normal operation—and was still going strong.

Compare the new Sherman with any tractor mounted backhoe. Make sure that the digger you buy has all of the features you need.

The all new Sherman breakaway capacity of 9000 lbs. is greater than any comparable backhoe. This revolutionary Sherman development means more power and faster digging.

The all new Sherman is fast and powerful because short hydraulic lines reduce friction power loss. And the exclusive pump drive in combination with the Sherman Planetary Step-up Transmission contributes to greater speed than conventional systems, as does the outstanding pump pressure of 2000 psi.

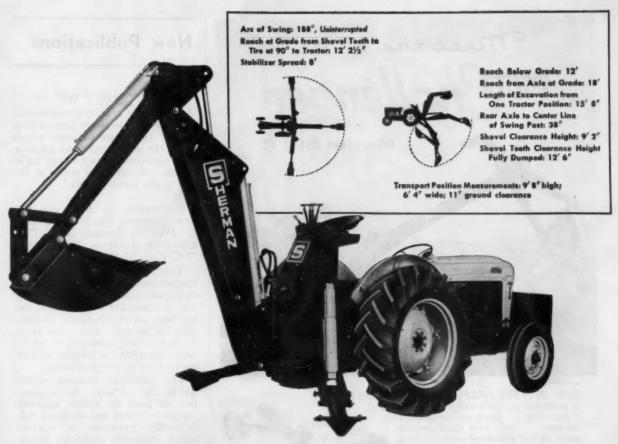
The all new Sherman has a wide work radius and a long reach—an uninterrupted arc of swing of 188° together with a 12 ft. reach below grade and a loading height of more than 9 ft.

The all new Sherman holds steady on sloping or uneven ground because the hydraulic stabilizers, individually controlled, give both lateral and angular support and the 12" by 14" foot plate assures maximum ground contact.

The all new Sherman can be dismounted in



Don't take our word for it. Put the Sherman on any job and clock it with a stopwatch. Prove to yourself that the Sherman saves you money by producing more work per doilar invested in time, equipment, maintenance, and manpower.



a few minutes by simply removing six pins and four bolts.

The all new Sherman has an efficient, all purpose shovel with quick adjustment for straight walls or high loading; full rollback for heaped, non-spilling loads; tapered side cutting edges to prevent binding; replaceable teeth.

The all new Sherman is comfortable because the seat is adjustable and the full, anti-skid deck permits leg position changes.

The all new Sherman lasts longer, costs little for maintenance. Here are a few of the reasons:

 Main and swing frames are heavy-duty steel plate, weldment construction.

Sherman Power Diggers are Engineered
Exclusively for Ford Tractors and are Sold and
Serviced by your Ford Tractor Dealer

Write for Bulletin No. 3565
... for more details circle 304 on enclosed return postal card
ROADS AND STREETS, July, 1957

- Full length, box construction sub-frame increases tractor rigidity and acts as a spring-like shock absorber.
- Reinforced, "stress-design" box construction boom with crowd cylinder operating inside for complete protection.
- Heavy roller chain couples the twin, single acting, swing cylinders to post sheave.
- Reinforced, "stress-design", box construction dipstick.
- Hydraulic reservoir is oversized for maximum oil cooling. Its central location and independent suspension eliminate possibility of leaks due to operating stresses.

Yes, the facts prove that the Sherman Power Digger is today's best buy in tractor mounted backhoes.

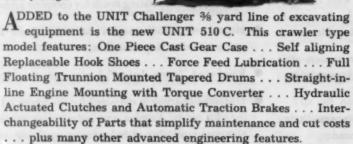




is powerful, compact, and perfectly balanced, it digs deep . . . trims corners neatly and squarely . . . cuts level floors and side walls without additional hand trimming.

AS A SHOVEL

The model 510 C performs with speed and precision. Has plenty of stability and produces maximum yardage.



And the safety promoting FULL VISION CAB enables the operator to SEE what he is doing at all times. Get all the facts. Write for your copy of Bulletin C 900.

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New Publications

(Continued from page 32)

discussion of the state expressway statutes and decisions interpreting them. Tables are included which show the more important substantive elements of expressway legislation, indicating the status of the law in the various states.

Acquisition of Land for Future Highway Use. Special Report 27. Highway Research Board, 2101 Constitution Avenue, Washington, D. C. Price \$3.20.

This report is a Highway Laws Project study of the legal authority to acquire land for future highway use. It consists of an analysis of the relevant court decisions dealing with the subject. Also other areas of public and quasi-public works were inspected for insights in and approaches to the problem.

The pertinent statutes which specifically authorize the acquisition of land for future highway use are collected and analyzed. Additionally, examples of statutes which impliedly authorize future use acquisition are discussed in the report.

A section of the report is devoted to the various methods the several states have utilized to finance acquisition of land for future highway use. Emphasis is directed at the revolving fund mechanism.

The report concludes with several appendices containing briefs of important cases, the several statutes which either specifically or by implication authorize future use acquisition and a state-by-state survey of the present status of the law.

HIGHWAY LIGHTING. Technical bulletin No. 222, published by American Road Builders' Association, World Center Building, Washington 6, D. C. Price 50c on request of the Association, except that one free copy is available to ARBA members in good standing, and additional copies at 25c each.

Sponsored by ARBA's technical committee on highway illumination, this bulletin contains chapters covering specific elements requiring consideration for highway illumination, design criteria, adaptation lighting and data on increased safety which accompanies the installation of adequate lighting facilities.



We don't blame her...

for trying to swipe a Le Roi rock drill with the new shock-absorbing handle. This remarkable innovation takes away 55% of the punishing tool kick without losing a single ounce of impact at the bit.

The secret is in the long-life torsion rubber cushion in the handle. It absorbs the liver-pounding, shoulder-jarring bounce...reduces operator fatigue...increases man/day output...keeps workers happier.

See your local Le Roi distributor. He's got the Model H10, H111, and H12 drills in stock available for immediate delivery. Or write Le Roi Division, Westinghouse Air Brake Co., Milwaukee 1, Wisconsin.

LE ROI NEWMATIC AIR TOOLS



CONTABLE AND TRACTAINS AIR COMPRESSORS . STATIONARY AIR COMPRESSORS . AIR TOOLS

BIG YELLOW TEAM KEEPS HOT MIX MOVING AT 150 TONS PER HOUR

Commonwealth Construction Co., Ltd., of Vancouver, B. C., Canada, depends on Caterpillar equipment for its road building jobs. The pictures shown here were taken near Clearwater, B. C., where 11.3 miles of highway were being surfaced with hot mix.

Included in Commonwealth's big yellow team at the mixing plant are a CAT* D318 Engine that drives the blower, a D342 that drives the mixer and a D364 Electric Set that runs the dryer, bucket line, pumps, burners, lights and conveyors. Hourly production is approximately 150 tons of material.

Power for the portable crusher is supplied by another Caterpillar D342 Engine. A D318 powers the 1-yard dragline that loads the hopper, and a Cat D6 Tractor stockpiles the gravel as it comes from the crushing plant, handling about 1,800 tons a day. The seventh Caterpillar machine in the

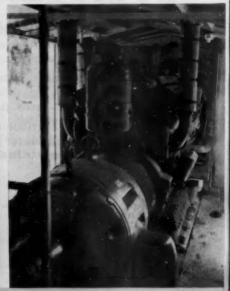
line-up is a No. 112 Motor Grader, used for scarifying and leveling the road.

Many contractors have found it pays to keep Cat equipment predominant in their spreads. Operators are familiar with Cat-built machines and feel at home with them. Rugged design, good control and ease of maintenance are other qualities which operators like about Cat equipment.

A quarter century of diesel leadership has produced a line of engines that are unbeatable for heavy-duty work. They're built to operate steadily, without fouling, on a wide variety of low-cost fuels, including ordinary No. 2 furnace oil. There are no cylinder ports to clean, and simple, single-orifice fuel injection valves need no cleaning or adjustment. Lubrication schedules are also simplified when all equipment is Caterpillar-built.







Three Cat Diesels power the Standard Steel hat mix plant: A D318, left; D342, center; and a D364 Electric Set, right.



One of the most important factors in standardization is the availability of prompt, efficient service on all machines from a single, responsible source-your Caterpillar Dealer.

He has facts and figures to prove the dollarsand-cents advantages of making Cat equipment the backbone of your spread. And he backs the long work life of that equipment with reliable service and Caterpillar parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*



This D342 Engine drives the Pioneer portable crusher. In background, working on the gravel stockpile, is a Caterpillar D6 Tractor.



The Koehring dragline, with 1-yard bucket, is powered by a Cat D318 Engine.



A Caterpillar No. 112 Motor Grader scarifies and grades road surface before asphalt mix is laid. are details circle 251 on enclosed return postal card



- MATS MATS
- . SEAL COATS AND SCREENINGS
- . STABILIZED SOILS
- **BEMBANKMENT AND** FLEXIBLE BASE



88 inch rolling width, torque converter, power operated reversing clutches and speeds to 22 m.p.h. make the Tampo SP-11S the most efficient black top roller.

Seal coat rolling at 12 m.p.h.—keep up with modern spreaders. Write for latest bulletin.



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Drill Under Pavements, Railroads ... with McCarthy UNDERGROUND Auger Drill



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SALEM, OHIO

Personals

Moles Elect Richard Johnson at New York Meeting

Richard A. Johnson, president of the Arthur A. Johnson Corpora-tion, was elected president of The Moles, an association of tunneling and heavy construction engineers and executives, at the annual meeting in New York. He succeeds Thomas J. Walsh Jr., president of the Walsh Construction Co.

Other officers elected were: Howard A. Collins of the Construction company bearing his name, first vice president; Mansell L. MacLean of MacLean-Grove & Co., Inc., second vice president; Richard M. Johnsen of The Foundation Co., re-elected treasurer; Gilbert M. Serber of Stock Construction Co., reelected secretary, and John A. Lambert of McKiernan-Terry Corp., sergeant-at-arms.

Four men were elected to threeyear trusteeships: Eugene F. Gibbons of Raymond Concrete Pile Co.; Daniel M. Lazar of Cayuga Foundation Corp.; John Malcolm of J. Rich Steers, Inc., and Henry T. Perez of Construction Methods.

Mr. Johnson is the first "second gneration" president of The Moles, his father, Arthur A. Johnson, having been president in 1944. The association was formed in 1938.

WILLIAM E. WOODRUFF, 49, manager of public relations for The Associated General Contractors of



William E. Woodruff

America and managing editor of The Constructor, official publica-tion of the AGC, died from an automobile accident.

(Continued on page 44)

The Low-Down on Low-Bowl Scrapers

A wide, low bowl is important in a scraper, but it takes more than just low-bowl design to give you performance with the best profit factor.

That's why Allis-Chalmers combines this with other equally important features to give you the most efficient scrapers available.

CHECK THIS PROFIT-BUILDING COMBINATION:

Low, wide-bowl design for fast, heaped loading.

Curved bowl bottom and offset cutting edge for faster, easier penetration and live, boiling loads that fill every corner of bowl. Patented apron-ejector linkage combines high apron lift with positive, forward forced ejection—permits either quick, complete dump or smooth, even spreading.

Your Allis-Chalmers dealer will be glad to discuss these and many other profitable advantages with you. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

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ALLIS-CHALMERS

Engineering in Action

B.F. Goodrich



All-Nylon Super Traction tires work 5,000 hours, can still be retreaded

NORTHERN IMPROVEMENT CO. operates 95 vehicles in heavy highway construction work in North and South Dakota, Minnesota and Montana. The scraper above, when loaded, weighs 35 tons, works 60 to 72 hours a week on dirt and gravel roads or no roads at all.

Even under these rugged conditions, B.F. Goodrich all-nylon Super Traction tires give 5,000 hours' service before retreading, then give an additional 70% of new-tread service on one retread! One reason for such an exceptional record is the B.F.Goodrich all-nylon cord body. Nylon is stronger than ordinary cord materials, withstands double the impact and resists heat blowouts and flex breaks. The all-nylon Super Traction body outwears even the extrathick tread, can still be retreaded-often over and over.

B.F. Goodrich builds the Super Traction tread with thick, widely spaced cleats that take a big bite into the soil, give you positive traction. Yet the extra-wide tread gives greater flotation in soft going. Work goes faster—you save money

Your B. F. Goodrich dealer has a complete line of tires (left) for all types of off-the-road work. And he offers expert, on-the-job tire service. See him today or write: B.F. Goodrich Tire Co., A Division of The B.F. Goodrich Co., Akron

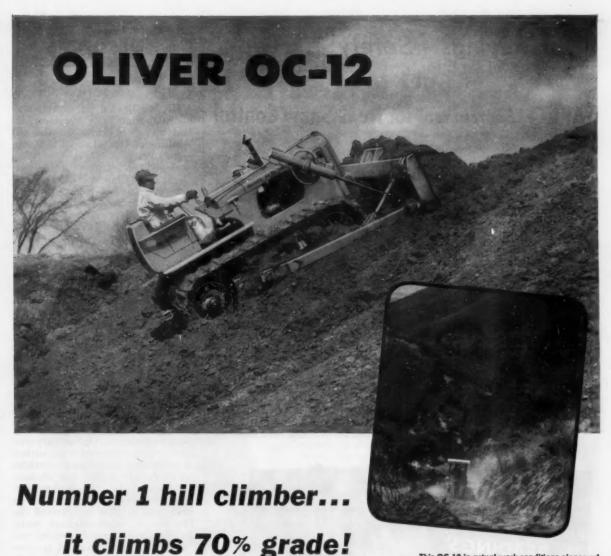
Specify B. F. Goodrich tires when ordering new equipment



There's a B. F. Goodrich tire for every construction job

ur R. F. Goodrich dealer is listed under Tires in the Yellow Pages of

for more details circle 274 on enclosed return postal card



This OC-12 in actual work conditions pioneered grades up to 70% in poor-traction soil... handled steep road building assignments.

Of course, you don't work at 70% grades! But top honors for the Oliver OC-12 at a recent hill-climbing competition prove that you have the correct power-to-weight ratio that means top tractor performance wherever your job takes you.

Here's balanced performance at its best...plus a whole set of advanced features to give this eager crawler its outstanding work and pioneering ability.

Oliver design gives you high, un-

obstructed clearance. You go over mud, stumps, rocks, etc. Even the final drive housing is close to the track frame and protected—not out in the open where it could pack up in deep going.

With Oliver POWER-TURN you get full-time working power, even on turns. You make short turns—but always with two-track power and complete control. This means straight-line working advantages all the time. What's more, steering pro-

cedure never changes, regardless of grade...uphill or down. No clumsy cross-hand steering ever. Works with full line of attachments. High-torque 53 d.b.h.p. diesel; also gasoline model.

Check out this modern crawler yourself. Ask your Oliver distributor for a demonstration or write for important new catalog.





THE OLIVER CORPORATION

400 West Madison Street, Chicago 6, Illinois

a complete line of industrial wheel and crawler tractors and matched allied equipment

. . . for more details circle 295 on enclosed return postal card

for Savings - Safety - Speed get a TARCO "Scotchman" for Ice & Snow Control

You can salt-treat your streets and highways 8 times Faster and 50% Cheaper with a stainless steel "Scotchman". Your choice of 3 models to use on any dump truck or pick-up . . . no complicated hook-ups. One model gives you One Man Cab Control.

See the NEW and EXCLUSIVE feature Cartridge Type Power Unit: engine, impeller, and electric starter is a single compact unit..., removed or installed in 5 minutes.

More snow control officials use the "Scotchman" for chemical spreading than any other kind! Reasons: It's Faster. It's more Convenient. It pays its way in savings of Time, Labor, and Materials. Ask your dealer or write for details.



Nothing Saves Like a "Scotchman" TARRANT Manufacturing Company

25 Jumel Place, Saratoga Springs, N. Y.

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The Acker Vane Shear Test Kit has everything needed to obtain fast, accurate, "In-place" shear readings to depths of 100 feet!

It's easy to use and provides accurate soils information at low cost! For ease in carrying, the entire set of tools are packaged in a handy steel kit.

Write today for prices and free illustrated folder 700! R&S

Assemble the Vane to the Rod!



Insert in Casing and Apply Pressure to the Torque Wrench!



Consult the Torque Chart for Accurate Reading:



ACKER DRILL CO., INC. 725 W. Lackawanna Avenue Scranton, Penna.

a complete line of Sall Sampling Tools, Diamond and Shot Core Drills, Drilling Accessories and Equipment

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Personals

(Continued from page 40)

He had headed public relations for AGC since 1939. Previously he had been a reporter for the old Washington Herald and The Washington Post.

He was a member of the National Press Club, the Public Relations Society of America, the American Public Relations Association, the Society of Business Magazine Editors, the American Society of Association Executives.

ROBERT ROYALL, information officer of the Bureau of Public Roads, has retired after 40 years of service. Since 1944, he has been chief of the Division of Research Reports, directing the information, publication, exhibit, and motion picture functions of the bureau, the collection and analysis of highway statistics, and the bureau's extensive library. He handled the information service to the press and the general public for many years. In addition, he has had a hand in most of the bureau's important reports to Congress. He has prepared its annual reports and is the author of numerous encyclopedia articles on roads. Mr. Royall was officially commended by the bureau for especially meritorious services in 1942, and in 1951 he received the Department of Commerce meritorious service award. During the 1930's Mr. Royall was an instructor in civil engineering subjects at George Washington University, teaching at night. Mr. Royall sailed on May 21 from New York for Bahia and Rio De Janeiro, Brazil, where he will visit his daughter for several months.

L. P. ZIMMERMAN has been appointed commissioner of highways of Minnesota, advancing to that position from chief engineer. He succeeds M. J. Hoffman who was commissioner for 18 years and has retired after 43 years in road building.

Hoffman is expected to remain as a special adviser to the Minnesota Highway Department. His many honors include the presidency of AASHO (1946), and George S. Bartlett award (1949), vice presidency of ARBA and other honors.

(Continued on page 49)

CLIPPER Sells MORE. Because CLIPPER Sells WALTY!





Call Us For A FREE **Demonstration By A Clipper Factory-Trained Representative**

Self-Propelled

 Cut MORE Concrete at LOWER Cost!

Clipper's SIMPLE design... RUGGED construction . . . DEPENDABLE performance give you a fast powerful Concrete Saw for heavy production cutting on all concrete and asphalt jobs. **EXCLUSIVE** Clipper features include SELF-PROPELLED unit with ABRASIVE COATED DRIVE WHEELS and rear wheel drive for powerful forward thrust. POSITIVE SCREW FEED-a "Must" when using low-cost "Green-Con" Abrasive Blades to compensate for diminishing blade diameters. Protects valuable diamond blades from bumping and scraping. A Positive Control AT ALL TIMESI

CLIPPER BLADES for EVERY JOB

Use Genuine CLIPPER DIAMOND Blades for Cutting Cured or Green concrete and asphalt with any aggregate. CLIPPER "GREEN-CON" Abrasive Blades for cutting "green" Concrete. There is a Clipper Blade for ALL Your Jobs.

Ask for FREE DEMONSTRATION TRIAL

on Your Job!

USE GENUINE CLIPPER BLADES—Diamond & Green-Con Abrasive

DIAMOND BLADES for any job-any aggregate-every saw! Choose your Clipper Diamond Blade from a wide variety of specifications to cut green or old concrete with outstanding speed and economy.

MODEL

C-250

25 H. P. Gasoline Powered. Gasoline or Electric Models

available from 11/2 to 36 H.P.

GREEN-CON ABRASIVE BLADES give you savings as high as 80%-with completely new series of "Green-Con" Rein-forced Abrasive Blades that cut "Green concrete" with the widest possible range of HARD to SOFT Limestone Aggregates.

Better Mail the Coupon KANSAS CITY, MO. Genuine Clipper Products are Sold Only Direct, from Factory Branches in Principal Cities, Coast to Coast. Consult Your Phone Book, or Mail Coupon for Same-Day Service.

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Firestone Rock Grips lead all tire choices with tread designs that travel any terrain!

Firestone Tubeless Rock Grips are making big news wherever heavy equipment rolls. Two great tread designs match toughness with traction to move your heavyweights over any course. Rock Grip construction eliminates your need to change tires to match terrain. It delivers the full flotation you need for sand and soft stuff. It also has the armored grip necessary to negotiate rock-hard runs over broken shale. Safety-Tensioned Gum-Dipped® nylon bodies and cutressistant treads make these Firestones first choice tires with men who move equipment. Your Firestone Sales Engineer can demonstrate why you'll make them your first choice, too. Contact him today—through your local Firestone Dealer or Store.

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ROCK GRIP WIDE BASE

ROCK GRIP

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ROADS AND STREETS, July, 1957

"all new MODERN design"

torque converter

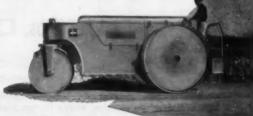
2-speed ransmission

General Purpose • Finishing or Variable Weight

Huber-Warco's newly-designed 3-wheel roller is a powerful, rugged machine built for economy, performance and durability. Greater roller efficiency is achieved by the use of a torque converter, tail-shaft governor and 2-speed transmission.

Other important features include: three-point "live" suspension of the sub-frame to cushion shocks, anti-friction bearings throughout, completely adjustable guide roll assembly, dual braking systems, and many other important bonus features.

Huber-Warco 3-wheel roller can be supplied with variable weight rolls, or with cast iron rolls, in various sizes, for general purpose or finishing work. See your Huber-Warco distributor for complete details. The Huber-Warco 3-wheel roller is the most modern, dependable roller you can buy.



For a demonstration—see your nearest Huber-Warco distributor



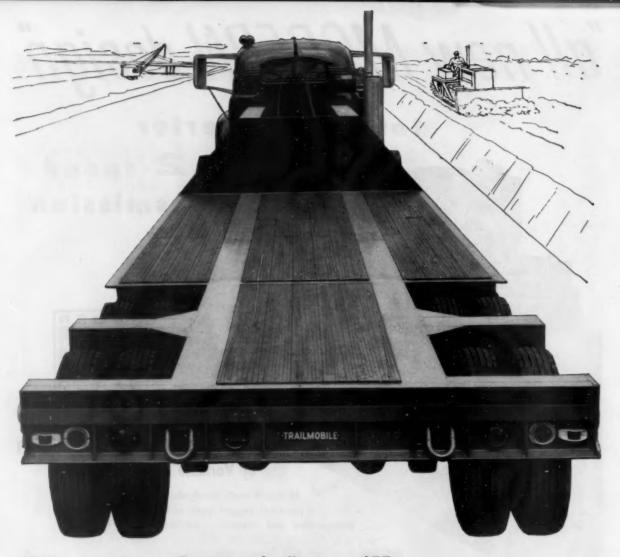
HUBER-WARCO COMPANY Road Machinery MARION, OHIO, U. S. A.

CABLE ADDRESS: HUBARCO

ROAD ROLLERS . MOTOR GRADERS . MAINTAINERS . GRINDERS

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ROADS AND STREETS, July, 1957



How much weight will a Trailmobile low bed carry?

| 20.000 | bs. | ☐ 40.000 lbs. | □ 60.000 lbs. | □ 80.000 lbs. | □ 150,000 lbs. |
|--------|-----|---------------|---------------|---------------|----------------|
| 20,000 | 100 | - 10,000 1001 | _ 00,000 .20. | _ 00,000 | _ 100,000 100 |

Regardless of which weight you checked, you're right—because Trail-mobile builds a low bed trailer for payloads in every weight class. Five versatile models feature massive, sturdy frames that are built to strength standards far exceeding normal requirements.

All units are available on convenient financing and factory service facilities are offered in 53 cities from coast to coast.

TRAILMOBILE INC.

Cincinnati 9, Ohio, Berkeley 10, Calif., Springfield, Mo., Longview, Texas Sales and Service from Coast to Coast For complete information check your nearest Trailmobile sales office or use the coupon.

TRAILMOBILE INC. • 31ST & ROBERTSON • CINCINNATI 9, 0.
Please send me complete information on Trailmobile Low Bed Trailers.

Name

Company

Street

City

State

ROADS AND STREETS, July, 1957

Personals

(Continued from page 44)

Commissioner Zimmerman, who was chief engineer since June 1955, was for many years planning engineer for Hennepin County, Minnesota.

C. P. TAYLOR BURTON has been appointed chairman of the Utah State Road Commission, under a new alignment enacted by the State Legislature. Replacing the former full time commission of three members, is a part-time unpaid policymaking commission of five members, selected from four districts, plus one member at large, which will function through a full-time director of highways—the latter post also being new.

Ellis L. Armstrong of Massena, N. Y., recently employed on the St. Lawrence Seaway project, has taken over the duties of Director of Highways. A native of Utah, Armstrong has had a wide experience on heavy engineering projects.

RALPH C. BUNNELL has been appointed district engineer for the Asphalt Institute at Albany, N.Y. He was formerly with the Aviation Engineer Force.

Aubrey M. Tinder has been appointed by the institute as district engineer at Atlanta, after having served as an asphalt paving engineer with a contracting firm, with the Virginia department of highways, and with recent service overseas with the Corps of Engineers.

WILLIAM G. DOOLY, JR., of the headquarters staff of Associated General Contractors of America, has been advanced to manager of public relations and publications and editor of AGC official magazine, The Constructor.

Mr. Dooly, who has been assistant manager of public relations and assistant managing editor of the magazine for several years, fills the vacancy created by the recent death of William E. Woodruff.

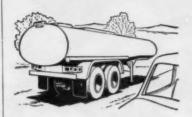
WILLIAM K. TAYOR, a soils specialist, has joined the staff of Benjamin E. Beavin Company, consulting engineers and surveyors, Baltimore, Maryland. Taylor has had extensive experience on the Ohio and Indiana Turnpikes.

There's a Trailmobile trailer for every construction need



TRAILMOBILE CEMENT BULKERS

. . . transport large amounts of bulk cement to mixing plants at the job site. Both steel and aluminum types offer exclusive step-down design with twin screw discharge.



TRAILMOBILE TANK TRAILERS

... are widely used for hauling hot asphalt, roadoils, and the great volume of water required at the site. Most units carry a unique guarantee against tank leakage.



TRAILMOBILE PLATFORM TRAILERS

... are used for carrying lumber, cement forms, drainage tile, straw bales and sundry light equipment. "Sideless feature" permits simpler, faster loading and unloading.



TRAILMOBILE HYDRAULIC DUMPS

... provide big capacity in a dump-type trailer for hauling and unloading sand and gravel. Unusually rugged construction guards against costly out-of-service time.



TRAILMOBILE LOW BEDS

... are used to deliver heavy road building equipment to the job area. Steel shovels, bull dozers and other large tractor-treaded units can be easily transported on these powerfully built trailers.



TRAILMOBILE FREIGHT VANS

... combine weather protection and mobility for hauling general supplies. Low cost used vans provide ideal job site offices, tool shops or storage facilities.

TRAILMOBILE INC.

Cincinnati 9, Ohio, Berkeley 10, Calif., Springfield, Mo., Longview, Texas Sales and Service from Coast to Coast

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Why Mr. Thorn expects and gets high production from this No. 12!



Besides bank sloping, this Cat No. 12 Motor Grader maintains haul roads for DW21s and DW10s on the 9.2-mile realignment of U. S. 91 near Mesquite, Nevada. Note D8 in background.



PAUL A. THORN

"We have owned Caterpillar products since 1927," says Paul A. Thorn, President of Thorn Construction Co., Inc., Springville, Utah. "We're firm believers in them because of economy, minimum down time, long life and constant engineering improvement. We also think that Caterpillar Dealer service is in a class by itself."

Speaking from 29 years of successful experience, Mr. Thorn now has a Caterpillar line-up that includes thirteen D8s, five DW21s, two DW10s, seven Diesel Engines, one Diesel Electric Set and six No. 12s. This No. 12, with 9999 hours on its hour meter, was part of the company's rugged yellow team on a 9.2-mile realignment of U. S. Highway 91. The contract involved moving 1,500,000 cu. yd. of dirt. Working 10 hours a day, 5 days a week, the No. 12 contributed its full share to money-making production.

Now an even more productive CAT* No. 12 Motor Grader

As good a machine as this "old" No. 12 has proved itself, there's even *more* work at *lower* cost with *less* down time built into the new No. 12. Constant engineering improve-... for more details circle 253 on enclosed return postal card

ment is the reason. For example, the new No. 12 has an exclusive oil clutch that can operate up to 1500 hours without adjustment. New tubeless tires, now standard, save time and money by eliminating an estimated 80% of down time due to tube and flap repair and by providing longer tire life. These and other features add up to a new standard of grader performance!

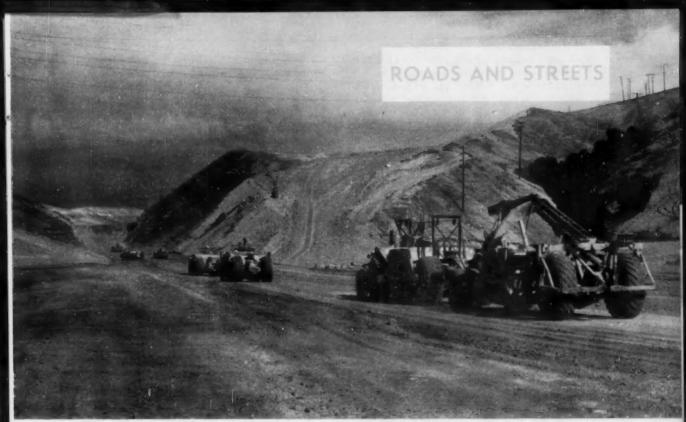
Another point well worth considering: your Caterpillar Dealer backs you with prompt service whenever and wherever you need it. He has the trained mechanics and parts to do the job fast and right. See him for complete facts about the practical, advance-design features of the No. 12. Name the date—he'll be glad to demonstrate!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Tradomer's of Colorpillar Tractor Co.

99% OF ALL
CAT MOTOR GRADERS
ARE STILL IN USE



• Tandem and single scraper units are trekking back up to the loading area, seen high in the reaches of the "Big Cut" in the far background at left in the view above. (Roads and Streets staff photo, taken late in 1956)

"Big Cut" Job on Schedule

Contractors Ferry and Crow are moving 30,000 cubic yards daily on the much-publicized California U.S. 40 relocation. Here is how the job looked in recent weeks, and how the contractors have managed their fleet to move maximum steady yardages efficiently.

A ROADS AND STREETS STAFF
FIELD REPORT

ROADS AND STREETS, July, 1957

A S YOU read this, the "Big Cut" project in the San Francisco Bay area is rapidly approaching the 8,000,000 cubic yard point—with "only" about 3,200,000 cu. yd. to go. Just how are they doing it, many contractors are wondering. Here are some of the highlights.

First a bit of review. Back in May of 1956, Roads and Streets' readers were given the first nationally-circulated report on the advance planning of this project, and a glimpse of the way the contractors were digging in. The job, it may be recalled, is a 2.9-mile segment of U.S. 40 being reconstructed on new line to full expressway standards. The road takes the motorist directly through a big hill from the Carquinez Straight bridge, as part of a new line that will lead north skirting Richmond toward the Bay area. The new location, the most spectacular highway earthmoving job in history, is requiring the moving of 17,000,000 cu. yd. in 7.9 miles.

The contract for the first 2.9 miles is the scene of the

great excitement because of the removal of a 250 to 230 ft. hill—a cut presently estimated at 8.9 million cubic yards (± 400,000 cu. yd.)—a notch 1,350 ft. wide at the top. All this yardage within a project length of less than 2,000 ft. This segment was awarded in December of 1955 to Ferry & Crow, a combine of Southern California contractors. The \$7 million contract included an exceptionally low bid price of 25.6 cents for the excavation.

As a further brief review note, the job included also a cut of about 825,000 cu. yd. and another small 900,000 cu. yd. cut to the south. The original estimate for over-haul was 455,000,000 station-yards from the big cut to disposal areas, involving chiefly hauls of 8,000 to 9,000 ft. for 5,350,000 cu. yd. of

The strategy of the job, followed with little variation from that planned, has been (1) to rip the sandstone and shale formations with heavy D9's using hydraulic rippers operated from the tractor frame, (2) push-load with D9's, and (3) haul with Cat DW20s pulling No. 456 scraper pans, some of the units also drawing in tandem a LeTourneau RU scraper of 23 yd. struck capacity (30 yd. heaped).

The first phase was to take out the 825,000 yd. hill, opening the way for moving from the "Big Cut" through this initial cut to waste area "A" beyond. This hill was melted down during the 1956 season, but not without the unexpected need

for bringing in a Northwest 80D shovel and trucks to handle 200,000 cu. yd. found too difficult to rip.

The job was aided in the autumn and 1956-57 winter by exceptionally dry conditions, offsetting the bad luck of needing a shovel. By spring of 1957, the road fill at disposal area "B" had been completed (see sketch). This 4.1 million yard counterforted embankment is the largest road fill, by far, ever constructed. With both the 825,000 cut and this fill done and ironed out, the scraper operators settled down for the really serious part of the job, that of making those 15,000 ft. round-trip runs from the big cut to the 160-ft. deep fill at waste area "A" (again see sketch).

During this period, nearly a million cubic yards of material out of the big cut was diverted—a shorter-haul task—for building up the interchange ramps near area "B".

The job was carefully planned to maintain a steady pace of 25,000 to 30,000 cu. yd. per two-shift day, to insure completion by deadline date of October 8, 1957. This gave Ferry & Crow an estimated 570 satisfactory working days, allowing for wet weather, etc. The contractors have chosen to hold to the steady pace, rather than to push toward a more spectacular daily progress, for reasons of job economy and over-all company operations.

In recent weeks the equipment has been augmented somewhat. As of May it consisted of 18 Cat

• Push loading in full progress in "Big Cut" area. Note tandem Cat scrapers being push loaded. At right is area in which quick yardage has been scalped with 20% downgrade. Road marks beginning of 8,000 ft. haul to Waste Area "A". (Roads and Streets staff photo, April, 1957)





 The four-million-yard fill for "Area B", under construction in the lower lifts, as seen during autumn, 1956. Note dozer-cut shelf at right, marking junction of ultimate fill with ground line.



In recent weeks the equipment has been augmented somewhat. As of May it consisted of 18 Cat DW20s (10 with No. 456 pans and 8 and later 12 with a second pan in tandem). In addition to the sturdy RU LeTourneau's, four new Caterpillar No. 90 scrapers were added this spring for tandem operation. These are built up with sideboards to 31 yd. capacity, heaped loose measure.

The No. 456 pans with extra-high (2 ft.) sideboards presently are carrying 17.0 to 17.5 cu. yd. (pay yards) per load. An example of the production is illustrated by the runs in the period from December 21, 1956, to February 20, 1957, which was an exceptionally dry period with excellent working conditions. In 35 working days (70 shifts) these single-pan units averaging 8 always in service tallied 34.230 loads or 575,546 cu. yd. of pay dirt. This is as entered on the project engineer's log book. This result was on runs largely confined to 2,500 ft. for building interchange ramps.

During the same period, ten tandem pans made the full run of 7,000 ft. and return, and in 35 working days moved 12,332 loads or 450,123 cu. yd., averaging 36.5 per load, loose measure.

The combined yardage during this period was 1,025,573, or an average of 29,300 per yards or (adding 40% for swell) 41,000 cu. yd. per day, loose measure.

This figured out 44 loads per day per tandem scraper unit, allowing approximately 15 minutes per round trip of 14,000 ft. And 98 loads per day for single pans on the 5,000 ft. round trip, at about 5 to 6 minutes per trip.

Much interest has centered on the relative productivity of the tandem versus the single pans. The above figures, of course, do not give (Continued on page 54)



Delivery, spreading, and rolling fill at Waste Area "A", as seen in April, 1957. This area will ultimately have a maximum depth of 160 ft., with ravines filled alongside the highway for use as industrial land by an oil refinery company.

a direct comparison, since the hauls are not the same. The engineers as well as the contractors have been reluctant to publish any direct figures. The Ferry & Crow management, however, feels that tandem hauling has paid off. A tandem unit here has about 2½ times the load capacity of a single. Doubles have averaged 15 minutes and singles 12 minutes for typical 14,000 ft. cycles involving several thousand feet of favorable grade, the time difference

being due to the necessity of using a lower gear on the uphill return with two pans.

Tandems and singles on the long haul have operated in an intermingled fleet, the singles helping push the tandems on the upgrade return when convenient. No tandem operator, however, waits more than a few seconds to provide assistance. The contractors by experimentation have gradually improved the productivity in a situation which,

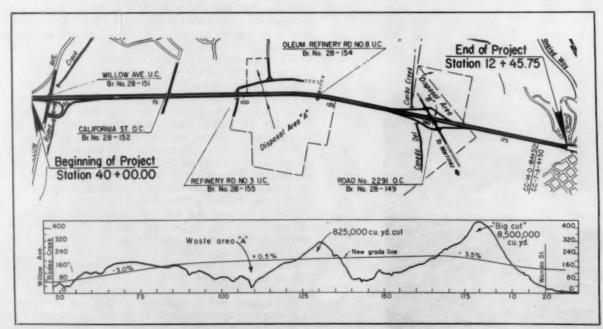
over most of the "Big Cut" operation, has involved downhill pushloading, a long sweeping down drag with the load, leveling off and at times involving minor adverse grade to the waste area.

Hauling speeds on the downgrade with load were set very high at first, but were later limited in the interest of safety and lessening of tire wear. Only a few minor tire mishaps have occurred during more than a year of hauling. The Firestone tires on the job have lasted around 2,000 hours before recapping, with a single round of recaps to date.

The operators help brake the pans on the fast runs by skillfully lowering the blades to an easy drag position.

• Ripping: Ripper work, as was foreseen, has been tough on the equipment. Both D8s and D9s are used for ripping, dovetailing this work as much as possible with push loading. The rippers have been equipped with H & L teeth, either one or two teeth used depending on the severity of the job. Teeth have lasted about six hours in the abrasive sandstone before discarding. The job trend is toward use of two teeth.

More recently excellent results have been obtained with an innovation in tooth design. Known as the "Double J" tooth, this in-



Profile and elevation of the "Big Cut" project, showing intermediate 825,000 cu. yd. cut that was
completed in 1956, the waste or filling areas "A" and "B" and other job features.

volves a horizontal steel fin built around the tooth shank in such a position that it gets down and splits the stone along the bedding planes, greatly expediting the ripping under varied conditions.

• Push Loading: On a typical 14-hour day, six D9 push tractors are required to dispatch about 900 loads out of the big cut. No comment here, except that it is noteworthy that the heavy D9 has been the standard pusher unit. Certain factory-recommended changes have reportedly been made in several of them, involving a heavier final drive and minor engine adjustments to maintain maximum power output.

Virtually the entire contents of the big cut are being moved southward out of the cut, the highest point in the original hill on centerline being practically at the north limits of the project, overlooking Kiewit's adjoining bridge approach project. Hence loading and haulaway have taken advantage of a natural amphitheater, sloping toward the waste area. (Only a small yardage toward the last will involve an adverse hauling grade).

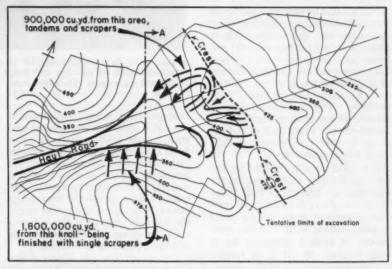
an adverse hauling grade).

This situation has permitted loading at times on an extremely steep grade, the loading at different points around the "bowl" being done in lines converting on the haul road (see sketch).

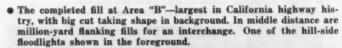
The cut project's long haul road has been maintained to almost



 The big cut in the beginning stages. Push loading done at various points converging on the main haul road.



 General scheme for loading scrapers in the Big Cut. The cut area includes a natural amphitheater, rising to maximum hill at one end of the project, and requiring hauling the bulk of the yardage in one direction.





boulevard hardness and evenness of surface, as an aid to job efficiency. The job's four Cat 12 graders patrol the roads, and the Euclid-Southwest 5,000-gal. sprinklers alternate between wetting the fill areas and laying dust on the haul roads.

• Boulders: Large boulders encountered in the excavation, of a nature impossible to break down by the ripper, are dug out and bunched by a tractor and loaded into end-dumps, using a Caterpillar 977 tractor shovel. Two Euclid rock trucks handle disposal. Some boulders have had to be drilled and shot. The loader and Eucs have also been used to remove pockets of oil waste from Union Oil Company's storage tanks which flank the job.

The project's over-all design in-

cludes a drainage system to tap ground water, consisting of an estimated 24,000 ft. of 2-in. horizontal drilled drains. Hydrauger equipment is used to install the perforated pipe. Discharges as high as 3,000 gal. per hour have been tapped. By late spring, with the cut slopes starting to emerge, 23 permanent drains, extending as much as 200 ft. into the hill had been installed. Culverts installed early in the job involved large footages of asphalt coated corrugated metal pipe.

Fill Construction: The soft sandstone, shale and overburden when delivered by the scrapers have blended into a high-quality fill material, requiring no special procedure to secure the specified density of 90% as measured by the California Relative Compaction Test method. The so-called 10-layer method of test governs for material for which the Sand Equivalent exceeds 25 and the 5-layer method for material under 25.

No restrictions are placed on the method of filling and rolling except that lifts are limited to 8-in. loose thickness. Ferry & Crow have used dual sheepsfoot units (single axle) in combination with a 50-ton compactor. A typical operation for a wide expanse of fill is to rough-spread along one side of the centerline while scrapers actively concentrate delivery here. A dozer does the spreading followed by sheeps-



 Fast work by a Northwest 80D shovel in the early stages of the initial 825,000 cu. yd.—but still tough luck, since Ferry & Crow had counted on ripping this entire cut.

foot passes. During this operation the other side is being dressed and rolled with rubber tires. On this half, a motor grader turns the material over and spreads it out, the sprinkler makes necessary passes, and the rubber-tired compactor operator circles in several round-trippasses, lapping his tire tracks to get the final density, then the scrapers start dumping on the other side and the operation is reversed.

Personnel: The job is part of the California division of highways' freeway program in the San Francisco district, with L. A. Weymouth, district engineer (opera-

tions), Vincent Smith, district construction engineer, and Charles P. Sweet, Jr., resident engineer. The job is part of the Carquinez project which is financed along with major bridges and other roadway segments from proceeds of revenue bonds to be retired by Carquinez bridge toll revenues. L. C. Hollister, project engineer for the Carquinez work, is coordinator out of the Sacramento general office of the division.

Ferry and Crow are represented by company principals and by P. R. Ferry, superintendent, and Norman Gilliam, assistant superintendent.

New "Double J" finned ripper tooth, which has successfully cleaved rock strata and aided ripping.



 Drilled horizontal drains in the face of the Big Cut are being made by this Hydrauger machine.



Pride of Contractor's Men in Equipment

A contractor today is known by the equipment he keeps and also by how well he keeps it. Maintaining equipment in good condition is not something that can be done just by deciding in the boss' office. There must be follow-through, and back checking. And "selling" the effort all down the line.

The well-known Long Island contracting firm of Hendrickson Bros., Inc., recently decided to encourage better care of equipment by giving commendation for operators and oilers who are doing an especially good job. This company's employee magazine, "Hendrickson News," inaugurated a series

of snapshots showing men who have done an outstanding job of equipment maintenance.

In this connection the publication editorializes to the staff in the following words:

"It has been noted by the management that the many cranes and shovels—both mounted and crawler type—are not always maintained in the best possible manner. A new piece of equipment looks new, but an older one can look just as good if the operator and oiler take pride in the appearance of the machine.

"Even more important is whether or not the machine is kept in good working order. The impor-

tance of proper lubrication cannot be emphasized too strongly.

"Keeping the under-carriage properly greased is another necessity that is only too frequently done carelessly and incompletely. The lifetime of a shovel or crane can be easily shortened by improper care.

"By the same virtue a piece of equipment can grow old in appearance if it is not kept looking good. Our company shop is responsible for keeping equipment in a good state of repair, but it is the pride of the operator and oiler that keeps it in good working order and in good appearance."

Should Highways Be Lighted?

Where does lighting fit into the Interstate highway program?

Interstate highway program?

The approach heretofore has been, "Light the streets? Of course. Light the roads? Out of the question." But this design point of view, as with others in the evolution of highways since World War I, is sure to see a change. Lighting of arterials in and around cities is spreading out and expressway designers now have accepted the need for lighting special areas such as interchanges, toll plazas and bridge crossings. At least one long stretch of cross-country highway, the Connecticut Expressway, is to be lighted continuously.

Last month at Asheville, General Electric Company's annual street and highway lighting conference spotlighted latest developments in this field. And it also brought out in the open some of the fundamental questions that must be weighed. Why light an expressway when all the traffic on each roadway is flowing in one direction, and when it

will be access controlled and fenced off from stray pedestrians? How many foot-candles are desirable. What should the lighting cost, and what is the probable gain in traffic efficiency and safety to justify the cost? Who will maintain the lighting and pay for its operation?

The lighting industry is girding for an intensive campaign for a share of the road construction dollar. But many engineers suggest that too much money spent for such "frills" constitute a new form of diversion. The same money could build more roads, they say.

Highway officialdom was represented among the speakers at this three-day conference by Joseph Barnett of the Bureau of Public Roads in Washington. Barnett, who is one of our best analysts, challenged the lighting industry to devise poleless facilities, that if possible will cost only a fraction of the costs presently in sight. He questioned the need for lights of the intensity planned. And he urged

the manufacturers and utility interests to participate more actively in research that will yield economic and safety data—with particular reference to dual-roadway, accesscontrolled expressways, as compared with city streets for which considerable such data are accumulated.

Barnett and others at this conference also spelled out a new concept of lighting's function in highway design. That is, to encourage fuller round-the-clock use of our costly new intercity highways. Industrial plants are run in three shifts to achieve full return on the investment, the reasoning goes. Why shut the highway plant down, even partially, at sunset, as happens now due to custom stemming from the psychological effect of darkness.

Fully and continuously lighted highways, which will encourage truckers to schedule night runs and which will stimulate more night driving generally, may be increasingly with us in the years ahead.

From New Orleans to Ketchikan "Small" <u>CAT</u>* Diesel Tractors Lick "Big" Jobs

Caterpillar D4 and D2 Tractors, for their size and weight, are as rugged machines as ever wore yellow paint. There are hundreds of jobs they can do just as efficiently as their bigger brothers. And contractors are proving it.

The four tractors shown here are working in localities as far apart as Alaska and Louisiana, and none of them is on an easy job. One owner, John Hannigan, of Philadelphia, puts it this way: "They're tough. I'd never buy anything else. They'll outwork other makes any time and any where. The only repairs I've made on this D4 in three years were adjustments to the main clutch, tracks and steering brakes."

Both the D2 and the D4 are built to handle the tough jobs, right up to their capacity, all day long and month after month. Yet they're small and compact enough to work in cramped quarters—tunnels or narrow city streets. Both are economical to operate, and

maintenance costs are consistently low, because they're quality built to stand up under punishment. Their dependable Caterpillar Engines have flywheel capacities of 48 HP for the D2 and 63 HP for the D4.

Let your Caterpillar Dealer show you how one of these smaller Cat Diesel Tractors will fit into your construction work and save you money. He backs their long work life with reliable service and Caterpillar parts you can trust.

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CATERPILLAR'

NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

NEW ORLEANS

Taking the "blues" out of Basin Street, this Cat D2 Tractor, owned by Boh Brothers Construction Co., New Orleans, La., is helping widen the famous thoroughfare to 44 ft. on each side of a center parkway. Old St. Louis Cemetery shown in background.



TORONTO

Poce Construction Co., of Toronto, Ont., owns this D4 with No. 4A Bulldozer, shown 'dozing fill into a bend of the Humber River. This is a diversion job, digging a new channel to prevent flooding, and moving the earth into the old river bed.



KETCHIKAN

The D2 helped Manson-Osberg Co. in the construction of a 7 ft. x 8 ft. hydroelectric tunnel through granite rock near Ketchikan, Alaska. Equipped with scrubbers, the tractor worked the whole length of the 4000-ft. tunnel, moving out over 1000 cu. yd. of rock.

PHILADELPHIA

Here the D4, owned by Contractor John Hannigan, rips up old concrete foundations and rough grades for a new driveway and parking area at one of the Penn Fruit Co. supermarkets, in Philadelphia, Pa.



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South Milwaukee, Wisconsin

KENTUCKY TURNPIKE. Working on Section 1C, near Okolona, contractors relied heavily on three sturdily-built, steady-working Bucyrus-Eries — a 2½-yd. 54-B and these two 1½-yd. 38-Bs. The job is part of a \$38-mille toll road between Louisville and Elizabethtown.









SAN FRANCISCO FREEWAY. With pressing deadlines on a 1-million yard earthmoving contract in construction of the Freeway across the Bay, equipment dependability was a must. This 4-yd. 88-B, one of several Bucyrus-Eries used by a veteran contractor, not only supplied the dependability, but contributed big output as well.

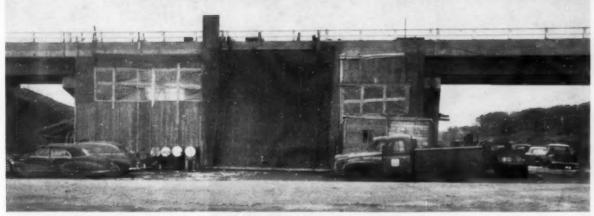


PENNSYLVANIA TURNPIKE. In construction of a 4½-mile section of the northeastern extension of this toll road, a ½-yd. 22-B loads rock and earth to a rear dump in clearing a fill area. Users find that quality-built Bucyrus-Eries pay off on a variety of highway work — providing power, strength, speed, and mobility for light- or heavy-duty digging.



LITORAL HIGHWAY, EL SALVADOR. A 2-yd. 51-B excavates rock and gravel on an 8%-million yard, 50-mile section of this Pacific Coast highway from Acajutla to LaLibertad, south of San Salvador. Contractors like the simple, accessible controls and easy operation of Bucyrus-Eries which reduce operator fatigue.

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• Not beautiful-but very practical and cosy: repair shop built under toll road bridge.

Contractor's Winter Overhauling

SHELTERED UNDER BRIDGE DECK

Some contractors do their winter overhauling in an old barn along their project. Others put up sectional buildings designed for reuse. Arcole-Midwest Corporation of Skokie, Ill., went both styles one better during the 1955-56 winter in their lay-over on the Indiana turnpike.

With a just-completed overpass deck for the roof and bridge form panels and tarpaulins for the walls and doors, Arcole's mechanics had a snug quarters at practically no cost to the company except for erection

This firm which had a "complete package" section of the turnpike, completed most of the grading and bridge work in 1955, working well into the 1955-56 winter when weather permitted. Bridges were completed and paving placed during the 1956 season.

The company's 50 major equipment units used for grading and structures were put in first-class shape in the improvised under-deck shop. A second shed, built for night servicing operations on heavy equipment, also hummed with activity throughout the winter.

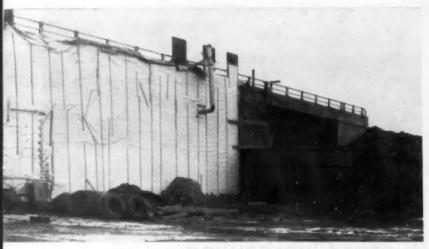
For improvising the unique shop, concrete bridge forms were used as sides and plastic tarpaulins for windows. The driveway door consisted of a large, heavy waterproofed tarpaulin. The bridge deck, besides serving as a ready-made roof, com-

prised steel beams of sufficient height and strength to be used for the runner rails of a traveling shop hoist. Thus engine removal and other heavy lifting jobs were performed with ease and convenience not always possible in a field repair shop.

Inside features included war-surplus portable tripod lights (both swivel-flood and fluorescent panel type), and an old-fashioned potbelly stove salvaged from an abandoned one-room schoolhouse. On one side of the "building" an opening was left for a semi-trailer which housed the parts bins. This second "room" made for more working space inside, and provided convenient access. Only small and most-

 Another look at Arcole's "winter palace" on the Indiana turnpike its walls were put to other work when spring came.





· Rear view of shop. Note trailer which was used as parts room.



 Another temporary improvised shed, which provided convenient night servicing operations on heavy grading equipment.

used parts were kept in stock; other parts were ordered from the company headquarters or direct from suppliers as needed. A two-way intercommunication system (squawk box), connected with the field office several hundred yards away, facilitated rapid ordering of parts from local suppliers.

Besides containing the usual work benches and tool racks, this shop had one end partitioned with a tough plastic material to serve as a paint shop. Here the various trucks and other units received protective coating from spray guns without danger of having the paint freeze before drying.

All types of truck repairs, including major overhauling, were performed in this shop as well as routine greasing and maintenance.

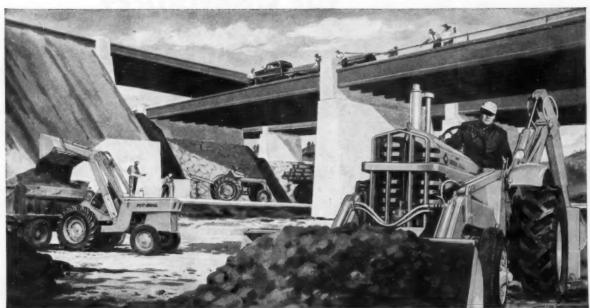
To service the heavy equipment in use during the winter this contractor made further use of concrete bridge form panels to erect a shed for this purpose. Here heavy equipment could be driven in at night where greasing, oil changing and routine maintenance operations could be performed with inside warmth where lubricants would flow freely and the men could work in comfort. A heavy tarpaulin over the large end door kept out the winter weather.

Winter repair, overhaul and painting personnel consisted of six mechanics under the supervision of master mechanic and truck dispatcher Arnold Kincaid. Arcole-Midwest Corporation's general superintendent on the Indiana Turnpike job was Albert Person. Office manager was Duane Schierbaker.

(Left): Interior view. Underdeck bridge beams provide support for hoists. (Right): Painters spraying a
paving machine. A sheet of heavy plastic kept paint fumes from other part of shop.







TYPICAL WORK BULL PACKAGES: 42-hp Davis Pit Bull at left using %-yd. bucket to clean up spill...34-hp Work Bull Model 202, center, with auger digs holes for retainer

posts. And, at right, 52-hp Work Bull Model 404 handles earth-loading with direct-thrust ¾-yd. loader. Hydraulic back-hoe handles 12 to 36" buckets.

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7-100

What Does it Cost the Public . . .

When the Political Axe



By Duane L. Cronk
Washington Editor of Roads and Streets

An account of what has happened to Pennsylvania's state road building organization, once among the best but now floundering badly—and doing so at a time when the state's federal-aid highway program should really be starting to roll.

THE Pennsylvania department of highways was resultful in the nation. It drew the services of top-flight career engineers. It enjoyed harmonious relationships with its contracting fraternity. Its costs were in line. It produced some of the best quality concrete highways in the East. Its asphalt technology had been overhauled and brought up to date. Its maintenance operation was generally accepted as among the best.

Despite the goings and comings of a succession of governors, with some shifting of top personnel, the department remained one of the top "going A kick of a shoe can destroy an ant colony . . . one bomb can obliterate a city . . . a single political decision can ruin a large professional and technical organization, whose know-how and team spirit require years of management skill to build up.

Wrecks a Highway Department

concerns" among the nation's highly developed roadbuilding agencies.

It was giving the public a seemingly good return on the tax dollar-making inroads on highway deficiencies.

Then, two years ago, in a fiercely contested gubernatorial election, the people of Pennsylvania elected a governor from the other party (Democratic), therewith turning out of power a party that had controlled state government for 16 years. Eager to entrench itself, the new administration began at once to root out "hold-overs" and to build up party strength by placing political faithfuls in state jobs.

The highway department—with at least 14,000 patronage jobs to play with—was considered the biggest plum of all.

There were no civil service bars to check the politicians. Every position in the department—from the Secretary of Highways to the lowliest pick-and-shovel job—was inherited by the successful party. For months rumors had spread through the highway industry in the East that the new administration was turning the Pennsylvania Highway Department upside down.

"Chaos Rides Roads"

Then, one of the most influential papers in the state unwound with a "haymaker." The *Pittsburgh Sun-Telegraph* splattered its March 17 Sunday edition with a black page-wide headline:

"CHAOS RIDES ROADS"
The first sentences declared:

"The Pennsylvania department of highways has collapsed. The entire roadbuilding program is in jeopardy."

Not "is threatened with collapse," or "will collapse unless," but "has collapsed."

With this portentous announcement, the Sun-Telegraph through its veteran civic reporter and Hearst good roads campaigner, Arthur Moore, launched one of the most critical and concerted editorial exposés in recent newspaper history. For 64 days in a row, the Pennsylvania highway department was publicly fried on Page One of the daily editions. Almost every issue turned up some new example of alleged mismanagement to support the editorial attack.

The department, the newspaper charged, had been completely usurped by the politicians who were running rough-shod over sound engineering and management practices. Among other things, the newspaper declared:

Trained highway engineers have been fired because they didn't belong to the right political party, and unqualified political appointees have been hired to approve plans and supervise construction.

• Because of the loss of its experienced staff, the department has had to call in consulting firms to handle much of the engineering work load. "Green" engineering companies have sprung up almost overnight, the newspaper claimed, "to grab off lush highway projects."

 The department has had to withhold millions of dollars owed to contractors because it no longer had qualified personnel to close out completed jobs.

 Costly errors in design and location of highways and bridges have resulted from decisions of inexperienced supervisors.

Can Any State Longer Afford the Spoils System?

The politicians are not solely responsible for the Pennsylvania Highway Department's present plight. As the victim of an archaic "spoils system" for years, it has experienced increasing difficulty in attracting "new blood." A 1952 report by the Pennsylvania Economy League found that not only was the department unable to hire enough young engineers, but was losing men faster than it could replace them. Furthermore, the core of the department was fast approaching retirement age. Only 7½% of the engineering staff were under 40 years of age. And 66% were over 50 years of age.

The first assurance prospective engineers must be given, the League said, if the department were to continue as a first-class engineering organization, was:

"Freedom from political pressure."
Its advice has not been followed.

Pennsylvania's Lawler: the Man and His Philosophy

JOSEPH J. LAWLER has been in politics a long time. He has held state and federal government jobs since he was 32-in the Pennsylvania Utilities Commission, the Internal Revenue, the Post Office. For a time he ran a family-owned petroleum distributorship. In 1954 he managed the gubernatorial campaign of George M. Leader, the first successful Democratic assault on Republican control of the state in 16 years. As a reward he was given Pennsylvania's top highway post.

The appointment is deemed a signal honor, and one carrying considerable responsibility. It is an office through which both party and politician can advance themselves considerably.

The Pennsylvania Highway Department, employing some 14,000 men, is the largest unit in the state government. Every job belongs to the party in power.

Mr. Lawler apparently has done a thorough job. An estimated 80% of the men in the department 28 months ago have been "reorganized" out of their jobs.

Another state official speaks of Mr. Lawler's accomplishment with pride.

"Lawler is one of the most effective men in Pennsylvania today. He is not just a common politician. He is a politician's politician. He knows how to handle things. If he ever got interested in highways, we'd really have some roads in this state."



Joseph J. Lawler

In the last few months, Secretary Lawler has become more interested in the state's highway program. To his dismay he has discovered the departmental "reorganization" left him with a shortage of engineers. Now the department is desperately trying to recover the ball. Pennsylvania has had to "farm out" preliminary engineering and design work to consultants increasingly over the past few years. Private engineering firms hold contracts covering of 700 million in jobs and worth \$24 million in fees.

Now, however, critics say, there aren't even enough staff engineers to adequately check the consultants' work. One firm reportedly has 11 projects on the boards, several of them

held up because state highway engineers are too busy to approve them.

Mr. Lawler has sought to correct this situation through a newly created Contract Engineering Division. Six menhave been assigned to expedite construction plans by consultants and to assist district engineers in checking specifications and standards.

The Secretary told Roads and Streets he has been successful in recruiting 42 engineers within the last six months, although, he admitted, only five are registered engineers.

Salary increases, ranging from \$156 to \$1,080 annually, have been obtained for engineers and technicians, and an "administrative civil service" system has belatedly been installed covering 1,342 highway positions. (Of course, it offers no protection beyond Governor Leader's own term of office, or less than two years.)

With such measures, Mr. Lawler hopes the highway department can be rebuilt to its former stature. The extent of the dilemma and the sincerity of the Secretary's desire to find some capable engineers are probably best described in his own words.

"You don't want to believe everything you hear about political sponsorship in this state. We haven't asked engineers what party they belong to for the last six months. We're taking anybody. For all I know, some of them may even be Republicans!"

During the week-long campaign, the Pittsburgh newspaper presented testimony from contractors, professional engineers, businessmen, motor club representatives and others.

Contractors' Harsh Report

One of the harshest indictments against the governmental organization was a report by one of the state's contractors' associations

state's contractors' associations.

"Deterioration has reached the point where little or nothing is worth salvaging," the roadbuilders declared. They charged that thousands of dollars are being wasted through political appointees who do not have either ability or experience. Contractors' operations, are frequently hamstrung because of inexperienced supervisors who can't make decisions in the field.

"It is not unusual to find many highway construction jobs with 15 or 20 inspectors being paid \$3,000 to \$4,000 per year and not a single man with any knowledge or ability whatsoever," the roadbuilders declared.

The contractors were also in-

As We Go to Press

The Automotive Safety Foundation reportedly has been approached by Pennsylvania's Governor Leader about the possibilities of a highway study (nature still undetermined). Both the legislature and the governor have agreed to an appraisal of the highway department's problems by an impartial third party.

censed by the delay of millions of dollars in payments due them for completed work. The state owes highway builders an estimated \$10 million, a prominent Pennsylvania contractor claimed, for projects going back two years. The reason—lack of men qualified to close up jobs.

There were other repercussions to the newspaper's prolonged crusade. The state legislation seriously debated a \$100,000 probe of the department's operations, then decided on calling in an impartial organization to make a thorough study of the organization's problems. Other newspapers throughout the state, sensing the popular appeal of the exposé, began to publish instances of alleged mismanagement in their

(Continued on page 72)

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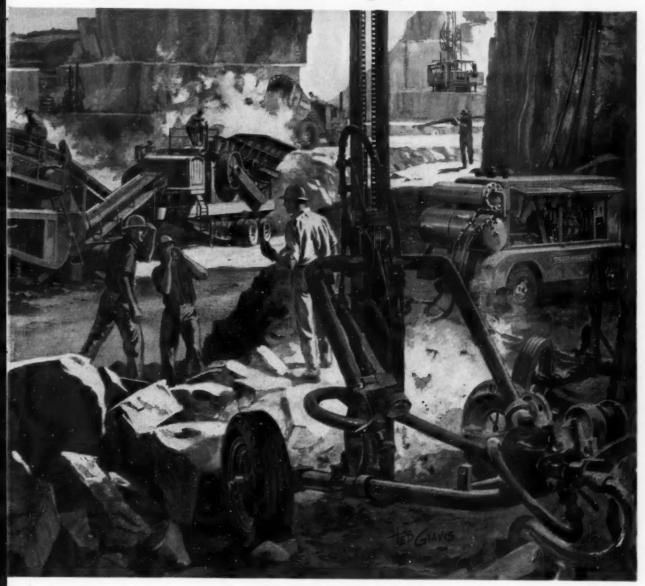
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POLITICAL AXE STRIKES

(Continued from page 68)

own districts. Delegations sprang up overnight to plague the department with complaints about local road conditions. Automobile clubs and other groups began to lambast the department unmercifully.

Checking with individuals close to or within the Pennsylvania state highway department—state officials, legislators, contractors, consulting engineers, and others—Roads and Streets found substantial agreement with the newspaper's charges.

80% Turnover Estimated

Since the administration change, one highway official estimated, 80% of the 14,000-man force has been fired or retired to satisfy the politicians' demand for patronage jobs. (This must be qualified by pointing out that, as in other highway departments, some engineers have been lost to high-paying jobs with consultants or have retired for other purely personal reasons.)

"It was pretty bad," one highway industry man said. "We know of engineers with long experience in the department who received a telegram at 4 o'clock in the afternoon, telling them they were through as of 5 o'clock that day."

John West, manager of the Pennsylvania Society of Professional Engineers, sent protests to the governor, urging him not to thoughtlessly destroy the core of engineering talent within the department, to give some protection to men who had given years of professional service to the state.

The distastefulness of having to hire and fire men on orders from party officials bothered some professional engineers considerably.

One ousted district engineer complained to the Sun Telegraph, "I couldn't hire or fire a man. My orders either came from Lawler or the Democratic chairman."

"The System Is Wrong"

Whatever their individual complaint, however, almost all of the complainants Roads and Streets queried agreed that the department's recent fall from public favor has been a long time in the making. Two weaknesses were cited repeatedly as the heart of the problem:

The centralization of the highway department in the hands of one Secretary of Highways who can be completely ignorant of highway department management and engineering and whose term of office gives the department no sounder future than the political fortunes of his party.

"There is nothing to guarantee continuity of leadership," a state senator pointed out. "We don't have a highway program in this state; we have a series of highway programs, short-lived and leading nowhere. Why? Because a secretary no sooner becomes educated in the highway needs of the state than he is replaced."

The status of the department as a patronage pot, traditionally the prize of the winning political

"It is true that this administration has been reckless beyond all reason in its firing of engineers, but the highway department has suffered losses of key men with every change of administration," another prominent state senator said. "We will never be free from recurrences of this situation until we take the department away from the politicians and give it back to the career engineers."

Contractors Agree

The contractors were in substantial agreement with this conclusion. A. E. O'Brien, long-time executive secretary of the roadbuilders' association, declared, "We're not fighting Secretary Lawler; we're fighting a system. Politics in the state highway department is hurting us in a dozen different ways. It hinders contractors on the job where they have to deal with unqualified or inept inspectors. It forces them to support political activities they're not interested in. It keeps our construction market in a constant state of uncertainty so we can't plan ahead. It slows up payments for completed work. It wastes money that ought to go into new roads."

Mr. West of the professional engineers' society blames the practice of requiring political sponsorship for the personnel problem the department is currently suffering.

The society has volunteered to help work out a merit system and employment examinations to assure the department of obtaining qualified personnel. When queried about the possibility of such a move, one highway official laughed, "If we were to give tests at this stage of the game we would lose half the men on the force."

The Associated Pennsylvania

Constructors has come up with a recommendation which, it believes, would eliminate the department's major weakness.

Briefly, the contractors want a five-man commission, each member from a different part of the state, each serving a 10-year term. A governor would be allowed to make two appointments to the commission each term, but his appointees would have to be approved by a two-thirds vote of the state senate. Commissioners would be paid an annual salary of \$30,000 to \$50,000. The commission would be responsible, not to the governor but to the legislature for its programs and budgets.

No Politics

Urging the creation of such a body to administer the highway department and remove it from the danger of future political purgings, the APC's Executive Secretary O'Brien declared:

"In its heyday, our highway department sought out engineers and technicians with ability, regardless of their politics or their homes. Some of the men who recently left the highway department after serving 35 or 40 years originally were brought in from other states, even from the Panama Canal when it was under construction.

"This has to be done again, but we believe it can only be done by a well organized, high-type highway commission."

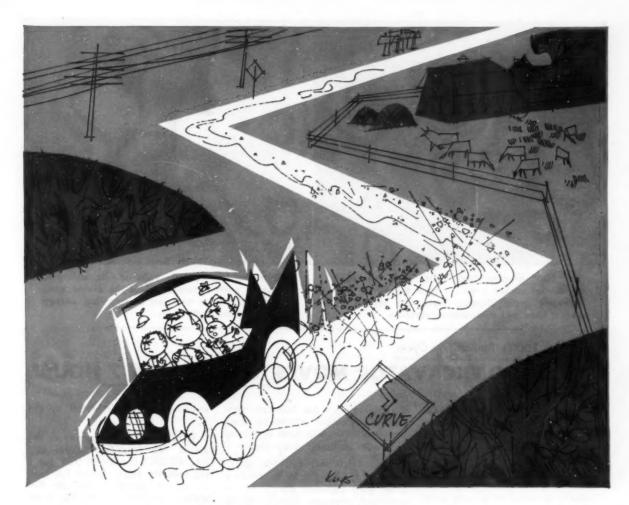
State Senator George Wade has introduced a bill which would organize a three-man commission, each member to serve six years. The chairman would receive \$15,000 a year, the other members \$13,000.

What are the chances of such re-

Senator Wade doesn't give his proposal "the ghost of a chance." Highway industry people lauded the contractors' recommendations, but expressed little hope for highway department reorganization. What about the Sun-Telegraph campaign? Has it done any good?

John O'Brien, the energetic highway writer who campaigned so vigorously for passage of the National Highway Program and now executive editor of the Pittsburgh paper, is not optimistic.

"We shook them up," he said.
"We gave them the facts. This is
just about as far as we can take it."



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ROADS AND STREETS, July, 1957

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Lime Subgrade Stabilization

On Texas Interstate Projects

Central Texas, scene of a decade or more of research in lime stabilization, is the site of full-scale emergence of this form of subgrade treatment. This article gives the details.

Construction of the first of three record-sized lime stabilization jobs was recently in full swing on the new Dallas-San Antonio interstate freeway in Texas. When completed, the three projects will have consumed about 17,600 tons of hydrated lime for stabilizing weak, highly plastic clay subgrades.

The first project, which commenced in January of this year, involves the use of 5,700 tons of lime in a 14.4 mile long section in Bell county, 50 miles north of Austin. The section extends from Belton southward to the Williamson county line, along-side the existing U. S. 81.

The two other projects, started this summer, are farther to the north, between Temple and Waco. As part of the new federal interstate system, this Class AA highway will be four-lane-divided, with

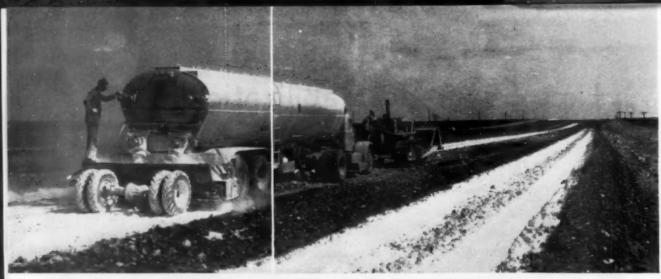
full control of access and continuous service roads on both sides (existing U. S. 81 one of these roads.) The thickness design for the Belton project is based on the Texas tri-axial method. It calls for a 6-in, lime-stabilized subgrade; an 8-in. (or 4-in.) foundation stone subbase; a 12-in. flexible stone base; and a 4-in. pavement of hot mix asphaltic concrete. Had lime stabilization not been used, the design would have required an additional 4 to 6 in. of foundation stone in order to accommodate the heavy design wheel loading. The decision to stabilize the subgrade with lime was precipitated by the lack of subgrade width along the project for placing the additional stone; i.e., the additional thickness would have made the side slopes between the shoulder and ditch much steeper than desired.

Lime is being used in about 12 miles of the project, with individual sections containing 6, 4½, or 3% of lime (by weight). The larger applications are made in the exceptionally highly plastic clays, which have PI's as high as 50. In all cases, the limetreated subgrade extends to the edge of the seal shoulders—a width of 42 ft. for each lane.

As a result of stabilizing the weak in-place soil in this manner, the subgrade has been transformed into a uniformly strong and stable working table for supporting the base courses and pavement. At

 The heavy clay required considerable effort to break up clods. Heavy tandem discs and crawler tractor effective here.





Spreading lime on the wet subgrade. This photo taken 30 hours after a 3 in, rain. A tractor came in handy in towing the tanker through the soft ground.

the same time, lime stabilization has contributed to construction economy by minimizing delays and aiding pulverization. This was particularly evident during January, February, and March, when construction proceeded on schedule in spite of exceptionally heavy rainfall.*

Delays were minimized because the compacted lime-stabilized base tends to shed rainfall and to dry out quickly. It simultaneously develops sufficient strength and stability during the prescribed 7-day curing period to permit heavy truck traffic. For example, on one occasion, within 30 hours after a 3-in. railfall, 25-ton truck loads of foundation stone were being spread on the compacted subgrade. Under normal subgrade construction involving such highly plastic clays, this amount of rainfall would have caused a delay of several days to a week.

Furthermore, during periods of lighter rain or under wet subsoil conditions, lime spreading and mixing were not necessarily stopped; and, when necessary, retempering of the lime-soil mixture was carried out without damage. Mixing and blading operations were also facilitated as a result of the lime's action in helping to break up the large clay clods, while simultaneously agglomerating the finer particles into coarser, more friable material.

Cost-wise, this method of subgrade construction was low, even though lime requirements were especially high (normally, only 3 or 4% lime is used in base course stabilization). Costs for 6-in. of compacted subgrade vary from 361/2¢ per sq. yd. for the sections requiring 6% lime, to 211/2¢ per sq. yd. for the 3%-limed sections. Included in these costs are 5¢ for compacting and water,** with the remainder for bulk hydrated lime, including transportation and spreading (the bid price for the lime spread was \$20 per ton).

Another feature at Belton is the compacting of the subgrade, subbase, and base courses in several thin lifts, thereby insuring optimum density throughout each course. Rolling is done first with lightweight multi-wheeled pneumatic-tired rollers, followed by a 50-ton pneumatic roller. Still another feature is the road processing of the foundation stone subbase course with grid rollers and a portable crusher plant. In this operation, pit-run limestone obtained from road cuts is crushed from minus 12-in. to minus 4-in. on the job site before com-

The Belton highway section, located in the Texas Black Prairies belt, traverses a succession of heavy clay soils developed from interbedded shales, clays, and limestones of Cretaceous age. The oldest formation encountered is the Edwards limestone of the Fredericksburg group and the youngest the Eagle Ford shale of the Eagle Ford group.

(Continued on page 83)

Besides economy and speed of construction, several noteworthy features characterize the Belton project. To promote uniform mixing, lime is "sandwiched" into the subsoil rather than being placed on the top or bottom. This is done by (1) scarifying and windrowing the top 3 in., (2) scarifying the bottom 3 in., (3) spreading dry hydrated lime, followed by sprinkling, (4) blading back the windrowed material and (5) pulverizing and mixing with a traveling mixer. Covering the lime in this manner helps to eliminate dusting or wetting in the event of imminent wind storms or rain. Placement within the base rather than at top or bottom also insures more uniform distribution. Bottom placement, in particular, is disadvantageous, since in order to insure mixing of all the lime, the scarifier would have to cut below the prescribed subsoil depths, in effect reducing the lime percentage below specifications.

Compaction in Thin Lifts

^{*}In April however, construction was at a complete standstill due to the well-publicised incessant rainfall, accompanied by tornadoes and flooding.

^{**}Below normal because of unbalanced bid prices.

Four DW15s move 350 yards of hard clay per hour on half-mile haul



H. H. Howard and one of the DW15 rigs, with D8 (Series E) pushing.

Working on State Highway 26, south of Daingerfield, Texas, J. E. & H. H. Howard have a 735,000-yard contract to raise the roadbed and widen part of it to four lanes.

When this picture was taken, all the earthmoving was being done by four CAT* DW15 Tractors with Scrapers, push-loaded by a D8. The spread averaged 3,500 cu. yd. of hard Texas clay per 10-hour day, hauling half a mile.

H. H. Howard says: "Our DW15s have worked steady for a year and a half with no trouble whatsoever except to replace an occasional cable. With the new D8 to push, we can load in a few seconds and keep all four scraper units on the run. Now we're buying a fifth DW15." This unit, incidentally, will make the twenty-fifth DW15 in the Howard fleet.

Now Caterpillar offers a new DW15 (Series E) with a new No. 428 LOWBOWL Scraper. The Cat high-torque Engine, specifically designed for the DW15, delivers 200 HP

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(maximum output capacity). With speeds up to 37.2 MPH, plus the extra sure-footedness of four-wheel traction, this rig gives you faster hauls and cycle times with greater safety. The No. 428 Scraper has a capacity of 13 cu. yd. struck—18 cu. yd. heaped—and it loads quicker and more easily because of LOWBOWL design.

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ROADS AND STREETS, July, 1957

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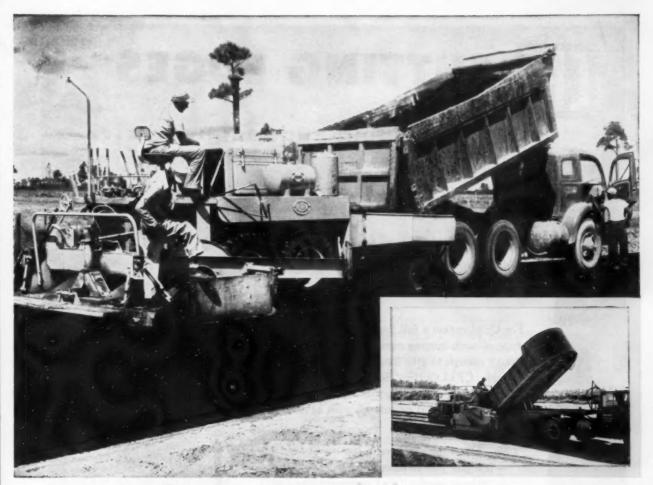
Black Top Paver will give you the kind of production that will mean money in the pocket. When shoulder paving or road widening are involved the Blaw-Knox Road Widener and Trench Roller team will reduce hand labor, wasted material, form setting and rolling time.

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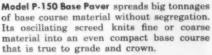


Road Widener can be used to spread gravel or pave concrete and asphalt on shoulder paving or road widening jobs. They can be adjusted to work from 18" to 10".

Trench Roller speeds trench compaction in either narrow or wide trenches. Rolling width and depth can be adjusted while roller is in motion.



Model PF-90 Bituminous Paver Finisher has high capacity features for big job production. No other paver offers its combination of rubber-tired mounting, paving speed, paving width, capacity and high travel speed — features that mean more tons per shift on day-after-day jobs.





Model PF-45 Black Top Paver assures big profits on small to medium black top paving jobs. Its rubber-tired mounting, capacity, high travel speed and maneuverability save time and hand labor when working in confined areas or on scattered jobs.

For complete information of the complete line of Blaw-Knox bituminous equipment send for the following bulletins — for the Model PF-90 Bituminous Paver Finisher, No. 2475; for the Model P-150 Base Paver, No. 2457R; for the Model PF-45 Black Top Paver, No. 2539; for the Road Widener, No. 2458R and for the Trench Roller, No. 2497.

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ROADS AND STREETS, July, 1957

· Pulverizing mixer also used to break up and thoroughly mix the heavy soil prior to treatment. This machine also performed the final blending of the lime.



LIME STABILIZATION

(Continued from page 76)

Intervening strata belong to the Washita group and include the Duck Creek limestone, Fort Worth limestone, the Weno clay, the Mainstreet limestone, the Del Rio clay and the Buda limestone.

Texas tri-axial tests made on selected raw soil samples indicated that more than 80 percent of the section was either Class 5 and Class 6 material, according to the Texas classification.* The Del Rio clay, in particular, was extremely weak, being classified as 6.4.

Table I gives typical physical

constants of the five soil types which required stabilization-both before and after treatment with varying amounts of lime. Note that these five clays were highly plastic (having PI's over 30), swelled considerably (linear shrinkage about 20 percent), and had low compressive strengths (generally less than 10 psi, unconfined). After lime was

*The Texas classification of subgrade soils and flexible base materials based on stress

curves, is as follows:

Class 1—Good flexible base material

Class 2—Fair flexible base material. Class 3-Borderline base and subbase material.

material.

Class 4—Fair to poor subgrade.

Class 5—Weak subgrade.

Class 6—Very weak subgrade.

For an explanation of this classification, see article by Chester McDowell,

Highway Research Board, Bulletin SR,
1949.

added, each soil showed considerable improvement. The PI and linear shrinkage values were reduced 2 to 4 times, and unconfined compressive strengths were increased up to about 400 psi (after 19 days). In general, lime additions elevated the clays to Class 1 and 2 materials (see Table 1 footnote).

Based on these laboratory tests, the design shown in Figure 1 was adopted for the stabilized sections of the Belton project. Starting northward from the Williamson county line, the first 4.64 miles contains 6% lime; the next 6.6 miles, in selected sections, 41/2% lime; and the final 3.2 miles, in selected sections, 3% lime. The only other variation in the cross-section is that

Table 1. Laboratory Test Data for Raw Soil and Lime-Soil Mixtures For Subgrade Stabilization on Texas Interstate U.S. 81

| | | F | Raw Soi | il | | | With | Lime | Add | ed | | Unco | n. Comp. | Strength | (psi) |
|---------------|--------------------------|------|---------|------|------|-------|---------------------------|------|------|------|------|-------------|-------------|--------------|------------|
| Soil Type T | Tex. Tri-Ax. Class | L.L. | P.I. | L.S. | S.R. | Lime | Tex.* Tri-Ax. Class | | P.I. | L.S. | S.R. | Raw Soil | With | Lime Ac | ided |
| Del Rio Clay | 6.4 | 79.0 | 50 | 23.0 | 1.86 | 6% | 2-3 | 61.8 | 27.7 | 13.1 | 1.52 | 8.3 | 4% | 6% 42.8 | 8% 45·3 |
| Darnoc Clay | 5.5 | 69.5 | 35 | 20.9 | 1.88 | 6% | 1-2 | 40.8 | 9.2 | 5.2 | 1.44 | 5.0 | 4% 257.5 | 6% 219.8 | 195.4 |
| Crawford Clay | 5.1 | 56.4 | 25 | 17.7 | 1.86 | 41/2% | 1-2 | 43.1 | 10.4 | 5.7 | 1.41 | 10.6 | 223.6 | 4½% 313.6 | 412.1 |
| Abilene Clay | 5.3 | 67.1 | 34 | 19.8 | 1.88 | 41/2% | 1-2 | 49.5 | 14.8 | 7.8 | 1.38 | 7.1 | 3% 175.9 | 41/2% 242.9 | 176.2 |
| San Saba Clay | 5-4 | 64.7 | 30 | 20.5 | 1.92 | 3% | 1-2 | 47.0 | 12.3 | 8.2 | 1.46 | 16.6 | 3% 79.9 | 41/2% | |

^{*}Although the laboratory tests indicate that these clay-lime mixtures fall into Class 1 or 2 materials, the Texas highway department (District 9) presently does not regard these mixtures as being equivalent of a high quality road metal for use as a base course.



 Eloquent picture of effect of lime stabilization. Rutted area is in raw soil, following heavy rain. Unrutted area immediately adjacent has been stabilized through the process described in article.

in the 6%-limed sections, the foundation stone subbase is 8 in. thick, whereas in the 4½ and 3% sections, the foundation stone is reduced to 4 in. Thus, total highway thicknesses are either 31-in. or 26-in.

In the remaining sections of the Belton project, stabilization was unnecessary, since the subgrade material consisted of either clay-gravel, limestone, or more stable clay-generally falling in the Texas Class 3 or 4 categories.

Construction Procedures

The Belton job, designated Federal Aid Project I 644 (14), was let to Pelphrey-Farquhar, Inc., Fort Worth, Texas, on December 31, 1956, at a bid of \$2,169,434 (with

300 working days allowed for completion). Ten other contracting firms bid on the work. Construction began on January 21.

The project quantities, besides the 5,700 tons of hydrated lime (for stabilizing 543,000 sq. yd. of subgrade), included 240,000 cu. yd. of foundation stone, 454,000 cu. yd. of flexible stone base, and 130,000 tons of gravel for hot mix paving.

The lime is trucked in from the Austin White Lime Co., McNeil, Texas, 40 miles from the project. Foundation stone is taken from road cuts on the project, while flexible base stone is obtained from two nearby Texas highway department quarries. The hot mix, made with gravel aggregates, is obtained from

a commercial producer in Belton.

The diagrammatic sketch (Fig. 2) which is shown on page 87 illustrates the construction procedure for stabilizing 6 in. of the clay subgrade. The subsoil in each lane is shaped to grade to a width of 57 ft., after which the center 42 ft. is scarified to 3 in., using a Ferguson Amco disc harrow, pulled by a Caterpillar D7 tractor.

The loosened clay is next windrowed to the sides with a Caterpillar 12 grader, and the bottom 3 in. is disced.

Hydrated lime is then spread from Fruehalf bulk tanker trucks by means of a Hercules C-900 cement spreader. Spreading is accomplished in four 10½ ft. wide swaths, with about four passes required for each swath in order to distribute the specified lime percentage.

Following spreading, the lime is sprinkled and "wrapped up" with the top 3 in. of material, which is bladed back from the windrows. The subgrade is sprinkled again, then allowed to set for 48 hours in order to permit initial chemical action which will facilitate later pulverization.

• Mixing. Mixing and pulverization are done with a self-propelled Seaman-Andwall Trav-L-Plant, with water added as needed. Generally, only two passes are required for sufficient mixing. When the mixing is completed, the entire 6 in. of material is bladed to the sides, after which it is bladed back and compacted in four 1½-in. lifts using a standard 5-ton 203B pneumatic-

(Continued on page 87)

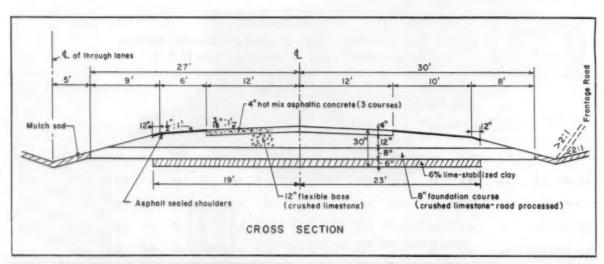


 Figure 1. Typical cross-section of U. S. 81 Interstate Freeway, near Belton, Texas. (Clay subgrade stabilized with 6% hydrated lime.)



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Even though you don't operate a ski lift, false economy can be costly in your rope purchases, too. For a rope failure can cause personal injury . . . wreck your equipment . . . throw off your entire work schedule . . . and affect employee morale. Yes, a "bargain" wire rope may save you money, yet cost you your peace of mind. Don't take a chance. Buy a rope that's a quality rope—buy Wickwire Rope.



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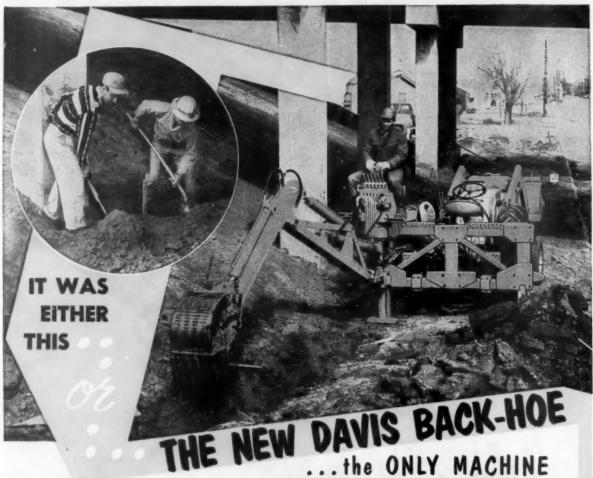
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ROADS AND STREETS, July, 1957





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ROADS AND STREETS, July, 1957

LIME STABILIZATION

(Continued from page 84)

tired roller, pulled by an Oliver tractor. Final compaction at the midpoint and at the top of the 6-in. layer is done with a 50-ton Tampo pneumatic roller pulled by a Euclid tractor. Generally, only three or four passes of the 50-ton roller are required to attain the density requirements called for in the Compaction Ratio tests. After rolling, the surface is shaped with a motor grader.

The final stage in subgrade construction involves damp curing for seven days. During this period sprinkling and rolling operations (with the 5-ton rollers) are performed as needed, and all heavier equipment is kept off the surface. It is very important that the subgrade be kept moist during this curing period.

In constructing the subgrade, the contractor has varied the "land" or working distance from 900 ft. long to 3,800 ft. long. The latter required the spreading of 220 tons of lime, which was done in two 10-hour days, using 16-ton truck loads.

During the course of subgrade construction, several improvements were made in the procedure. At first, lime was delivered in cabledump trucks and tailgate spread. More uniform spreading was effected by switching to bulk tank trucks and the Hercules spreader, although the method is somewhat slower. Pulverizing and mixing, first handled with the disc harrow, motor grader, and sheepsfoot roller, were also improved by changing over to the rotary mixer. This change effected more uniform mixing and with fewer passes required.

• Subbase and Base. Specifications for the 8 in. (or 4 in.) foundation stone (subbase) are as follows: retained on 4 in., 0-10%; retained on 40-mesh, 50-80%; PI, less than 18; and linear shrinkage, not to exceed 10. The stone is blasted and excavated from various rock formations outcropping at selected road cuts and loads are dumped to provide a full 8-in. thickness across the 57-ft. lane. The top 4 in. then is bladed to the side in windrows, after which the bottom 4 in. layer is crushed to minus 4-in. size by a Seaman-Andwall traveling rock crusher plant. In initial construction the road processing was handled by a gridtype roller pulled by a D8 tractor. The traveling crusher plant was

Step-by-Step

1. After subgrade shaped, top 3 in. scarified with disc harrow.

2. Top 3 in. bladed to sides, and bottom 3 in. disced and left in place.

3. 6% lime spread in four 10½ ft. wide passes, followed by sprinkling.
4. Top 3 in. bladed back from wind-

 Top 3 in. bladed back from windrows (wrapping up), and subgrade sets for 48 hours. Subgrade kept moist during this period.

5. Subgrade mixed and pulverized with rotary pulvimixer, water being added as needed.

6. All lime-treated clay bladed to windrows.

7. Material brought back and compacted in four 1½-in. lifts with pneumatic rollers, the 50-ton roller being used at midpoint and at surface.

8. Surface shaped with grader, and subgrade damp cured for seven days.

• Figure 2. Stages in constructing 6% lime-treated subgrade.

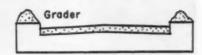
found to be about three times faster and to effect more uniform breakage.

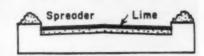
After crushing, the bottom layer is sprinkled and rolled and then shaped with the grader. The windrowed material, constituting the second lift, is then bladed back, after which it is crushed and the layer compacted and shaped, thus completing the foundation course.

The 12-in. flexible base is constructed in several thin lifts, with the 50-ton roller used on the top of each course. Final rolling of the top layer is done with 12-ton 3-wheeled steel rollers. Stone for the base is pre-crushed and sized with a portable plant located at the quarry to meet the following specifications: retained on 3 in., 0%; retained on ½ in., 65-80%; and passing 40-mesh, 10-20%; liquid limit, not to exceed 35; PI, not to exceed 12; and linear shrinkage, not to exceed 7%. The base material, quarried from the Edwards limestone, is the hardest limestone in the area, having a Los Angeles Rattler of 30.

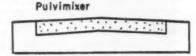
• Pavement. Pavement for the two main lanes of the Belton highway consists of 4-in. of hot mix asphaltic concrete laid down in three courses, while the frontage roads have 1½-in. hot mix surfaces. Exceptions include (1) the temporary sections of the main lanes (at future grade separations), where the pavement

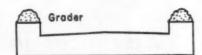
Disc horrow



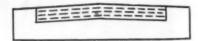








Pneumatic roller (5 ton-50 ton)



Grader, 5ton roller, water wagon

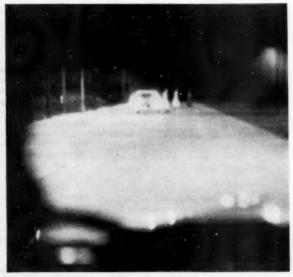


is $2\frac{1}{2}$ in. thick; and (2) the sections of frontage roads passing through towns, where the pavement will be $2\frac{1}{2}$ in. thick and include curb and gutters. Gravel and crushed gravel will be used for all of the hot mix with the exception of the acceleration and deceleration lanes, which will incorporate coarser-textured crushed stone for contrast and traction.

Road shoulders are asphalt surface treated and consist of the following: a prime coat of MC-1 applied at 0.2 gal. per sq. yd., an asphalt OA-135 coat applied at 0.3

(Continued on page 99)





Showing the difference adequate roadway lighting can make to the motorist. (Left): The driver peers through a tunnel of darkness—with only his headlamps providing light for driving. The vehicle is 211 ft. distant—the stopping distance required for an automobile traveling 50 mph. Pedestrians crossing the thoroughfare behind the farthest vehicle are barely visible. (Right): With adequate roadway illumination (provided by GE's Form 406S fluorescent luminaires), both highway and pedestrians are clearly visible. One of the demonstrations conducted at GE's new demonstration grounds.

Advances in Highway Lighting Reviewed at National Conference

Unique demonstration grounds for highway and street lighting unveiled at annual industry meeting held by General Electric Company at Asheville, N. C.

INTERSTATE express highways should be built not only to the most modern geometric standards. They should be lighted, as well, to encourage safe, efficient 24-hour-aday utilization of these costly facilities.

And when the highway engineers are ready to include lighting in their designs, the outdoor lighting industry will be ready with improved facilities.

These were among the challenging highlights of the National Highway and Street Lighting Conference, held at Asheville, N. C., May 14-16 by General Electric Company. Sponsored by the firm's Outdoor Lighting Division, which has just opened a modern factory

at near-by Hendersonville, N. C., the gathering brought together 300 specialists representing utilities, city street departments, roadbuilding agencies, and others.

A score of top-ranking authorities were represented on the program, in a "work shop" atmosphere which brought out many technical problems such as must be considered by the electrical engineers. New larger and improved luminaires in the mercury-vapor and fluorescent class, the result of GE's long-range research, were described, and the street lighting progress in such cities as Philadelphia and selected smaller cities was reviewed.

A highlight of the three-day

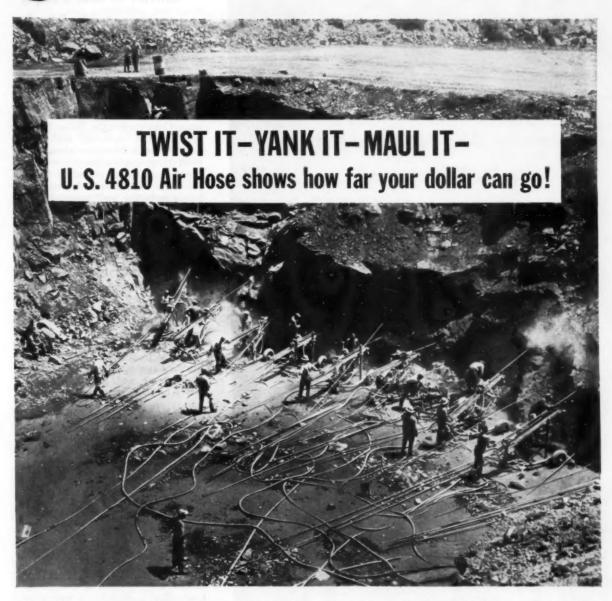
meeting was an excursion taking in the new factory and also the new Demonstration Streets. These streets, built in a radiadial scheme on grounds adjacent to the factory, permit the visitor and also the firm's research engineers to view various lighting results from a single vantage point. Switches were manipulated to show the comparative effects of different pole spacing, mounting heights, sizes and types of lumens, and other variables.

The outing also included a dramatic demonstration of effective "Turn On" ceremonial procedures, such as the lighting industry has helped to develop in connection with new Main Street lighting in many communities.

Another high point in the meeting-at least for those primarily concerned as highway planners and

(Continued on page 92)





This is the hose recommended for all pneumatic tools and air drills – for use wherever high working pressures, abrasion and general abuse would wreck an ordinary air hose.

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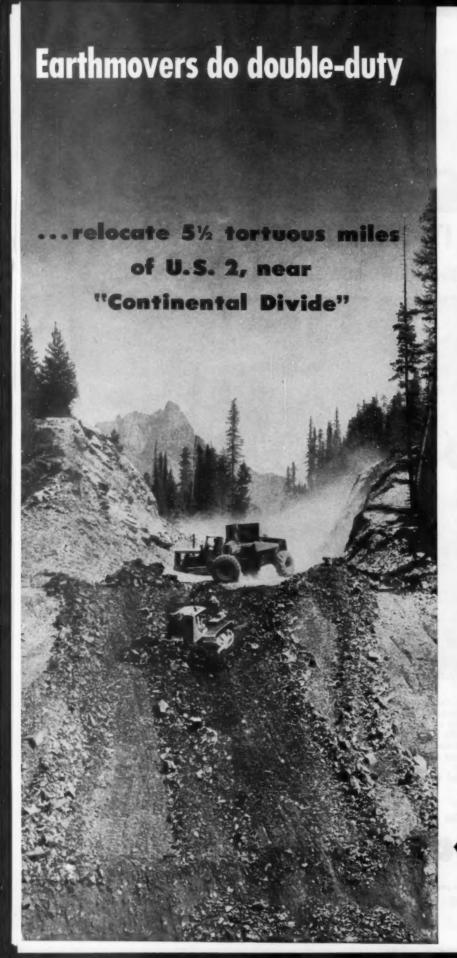


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ROADS AND STREETS, July, 1957



Tournapull® scrapers change river channel --convert to Rear-Dumps, outmaneuver trucks 5 loads to 4, hauling blast-rock

Completion of a million yards of tough earthmoving by Tony Marrazzo Construction Co., Boise, Idaho, has ended a motorists' nightmare east of Nyack, Montana, along "the most dangerous 5 miles in the entire cross-country length of U.S. 2". Road hazard was so bad, that even before surfacing, traffic started using new route to bypass hairpin turns in the old mountainside road.

Construction of a river-level road along Middle Fork, Flathead River—boundary of Glacier National Park—involved moving 1,000,000 cu. yds. of dirt and rock. To handle 75% of the yardage, Marrazzo used three 16-yd., 210 hp, self-propelled C Tournapull-Scrapers—plus 2 interchangeable, 22-ton rear-dump trail-units. Machines were equipped with Electrotarders—an auxiliary braking system which eliminated brake wear and provided added safety on long, steep grades.

Scraper trail-units used first

C Tournapull-scrapers dug out new channels to straighten 3 curves in the mountain river. To do this, they waded out thru water with full loads, working in the river bed without difficulty. Scraper units also handled other dirtmoving assignments along the job... built grade along the river... and cut off a sharp curve to relocate 1600' of G.N.R.R. track.

Convert 'Pulls to Rear-Dumps Haul blast-rock to "Devil's Elbow"

In one 3000' section of road, contractor had to drill, blast, and excavate 195,000 cu. yds. of rock. For hauling, contractor converted 2 "C's" to Rear-Dumps by a simple change of trail-units. The two 22-ton 'Pulls and 2 similar-sized conventional competitive dump trucks hauled and dumped rock in a deep valley... built a fill for the roadway, 125' high, over an $8\frac{1}{2}$ ' x 418' culvert. The new highway cuts

C Tournapull Rear-Dump rolls onto narrow fill, and pivots around for quick back-up to dump edge. For only about 25% extra outlay, Tony Marrozzo Construction Co., Boise, Idaho, bought interchangeable dump trait-units for their "C" scrapers. Scrapers loaded, houled, and spread dirt; Rear-Dumps hauled shovelloaded rock, near Nyack, Montano.

straight-across the deep ravine, and eliminates the always-dangerous curve called "Devil's Elbow".

"C's" save 2 minutes per cycle

A stop-watch time-study showed that Tournapull Rear-Dumps' extra speed and 90° turn-ability saved time in restricted loading zones... over narrow, shelf-like haul-roads... and at tight dump areas. Chart at right shows typical time study (in minutes) for one phase of the job.

"Muck-movin' sons o' guns"

Marrazzo superintendent says, "These Tournapulls are muck-movin' sons o' guns... they'll get under a tighter spot than (competitive unit). I like their maneuverability in narrow cuts. They work in and get loaded quick... and this is some of the roughest going there is!"

Rear-Dump operator reports, "'C's' are good maneuvering rigs...so far ahead that our dump-truck type haulers aren't even in it. The Electrotarder pulls you right down — no matter how fast you're going — without touching the regular brake pedal. It's a real brake-saver."

Contact us for complete details on how Tournapull Rear-Dumps and scrapers — or combination of both — can cut your earthmoving costs.

| | Competitive Dump-trucks | Tournapull Rear-Dumps | "C's" |
|---------------------------------------|----------------------------|--------------------------|-------|
| LOAD, 5-21/2 yd. dipperfuls | 1.97 | 1.91 | 0.06 |
| MANEUVER, at shovel | 0.84 | 0.52 | 0.32 |
| HAUL, 1470' down and up grades to 18% | 3.04 | 2.36 | 0.68 |
| MANEUVER, at fill | 1.22 | 0.46 | 0.76 |
| DUMP | 0.28 | 0.21 | 0.07 |
| RETURN, 1470' | 2.62 | 2.51 | 0.11 |
| TOTAL CYCLE, overage | 9.97 | 7.97 | 2.00 |

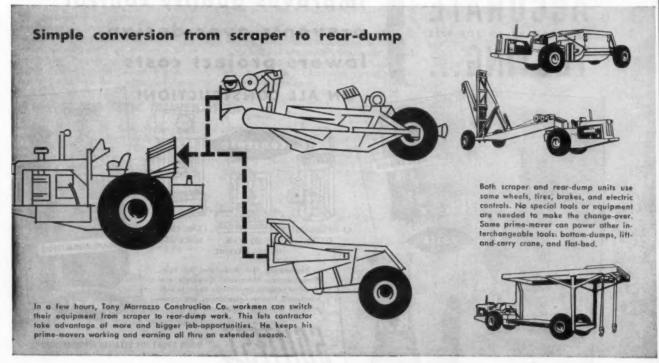




On this narrow ledge, 2 of Marrazzo's C Rear-Dumps and 2 competitive dump trucks were each loaded with five $2^{1}/2$ -yd. buckets of blast-rock. Restrictive terrain temporarily made it necessary for loaded haulers to back up to 40° wide turn-around before starting haul.

Hauling thru cuts previously carved-out, loaded Tournapulls attained speeds to nearly 30 mph, averaged 7.08 mph from start to stop on 1470' trip to the fill. Haul road presented a continuous succession of grades varying from 18% favorable to 10% unfavorable on the haul.

CPCR-1206-H





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LIGHTING CONFERENCE

(Continued from page 88)

engineers—was the opening talk, given by Joseph Barnett, Assistant Deputy Commissioner of Public Roads in Washington. Barnett, who ranks as one of the nation's foremost authorities on urban highway design, outlined the economic problems and the rather formidable design criteria sought as an ideal for highway lighting.

"Lighting engineers will have a rare opportunity," he said, "to prove the need for, and improve the type of, lighting needed for Interstate highway segments which apparently justify fixed-source lighting," Many miles of the Interstate system doubtless will have such lighting, he said, but added, "It is unfortunate that we do not have a sound basis for justifying fixed source lighting." Mr. Barnett's detailed statement on this point was as follows:

"State highway administrators are hard headed businessmen, as they should be to carry out their public trust, and they must be con-

(Continued on page 94)

Expressway Lighting Vs. Street Lighting

The basis for designing fixed source lighting for through-traffic roadways of a controlled access highway, said Joseph Barnett at the Asheville conference, is different from that for a street or non-controlled access highway. He spoke as follows:

On streets, we are dealing with slow speed stop-and-go operation, parking, slow moving right and left turn, pedestrians, traffic signals, roadside distractions, policing, and several other factors. A high intensity of lighting is justified.

On controlled access highways, however, we are dealing with fastmoving steady traffic flow only with an occasional point of mergence or emergence at much the same speed at flat angles. Should not the lighting industry be thinking and researching for a totally different type of fixed source lighting?

May I be so bold as to suggest criteria for such lighting:

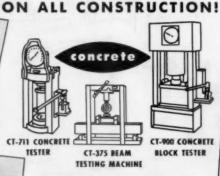
- (a) A low intensity, perhaps 0.2 or 0.3 foot-candle average.
- (b) Uniformity over the entire area of pavement and shoulders, perhaps 10 percent maximum variation.
- (c) Low cost, perhaps \$10,000 per mile first cost and \$1,000 per mile per year maintenance and operation; and
- (d) No poles or underground wires, or at least so located as to be inconspicuous and well outside the roadway limits.

"These are near-impossible criteria, of course," said Barnett, "but I have enough confidence in the great public utility industry to feel that if these criteria are held up as a goal, it will produce a lighting system acceptable to highway administrators as justified on a much greater mileage of the Interstate system than the present lighting system."

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How to beat bad weather ...tough job conditions

It's no accident that LeTourneau - Westinghouse Tournapull® scrapers haul more dirt—lose less time because of bad footing and other adverse working conditions—than any comparable rubbertired scraper combination. Sand ... soft cuts and fills ... even wet, muddy going fails to bogdown Tournapull scraper combinations. Here's why:

POWER-TRANSFER DIFFERENTIAL

Major reason for Tournapull's success in moving impressive yardages in all working conditions is its patented, automatic, power-transfer differential. It maintains effective pulling-power on both drivewheels — regardless of footing. When one wheel begins to spin, differential automatically transfers up to 4 times its tractive effort to drive wheel on firmer

footing. Neither wheel will spin independently until the 4-to-1 ratio is exceeded.

Exclusive L-W differential works continuously — on turns, through mud and slippery footing, over rough, uneven ground. This gives you better traction throughout any haul cycle . . . for faster, easier, more profitable dirtmoving.

ELECTRIC KINGPIN POWER-STEER

Where footing is very bad, positive electric kingpin power-steer adds to Tournapull's tractive power. Operator just flicks dashboard steering switch left, right, left, right. This pivots prime-mover from

side-to-side..."walks" drive-wheels onto solid footing. Kingpin steer also permits operator to make continuous 180° turns in space less than unit's length... permits working in restricted areas.

BIG, LOW-PRESSURE TIRES

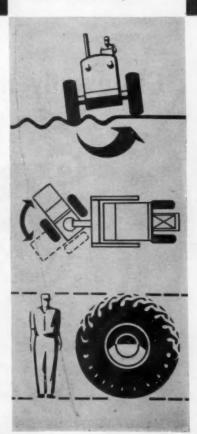
Big, single, low-pressure tires give extraflotation to carry Tournapulls through soft going. Tire "floats"... stays on top of the ground instead of digging in.

In addition, tires provide firm, positive traction. Lug height on tire is great enough, and the distance between cleats wide enough, to permit a big bite. Operation at low-pressures permits more of the tread to grip the ground in soft sand or mud. Tournapull tires get a good firm prip, but do not dig in.

For more work days in "shut-down" weather, it will pay you to investigate the popular easy-loading 27-yd. B Fullpak*, 18-yd. C Fullpak, or 9-yd. "D" handyman. Call or write for complete details and owner-verified production figures. No obligation.

Get complete facts







LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

. . . for more details circle 330 on enclosed return postal card

WHERE QUALITY IS A HABIT



• At General Electric Company's new "proving ground" at Hendersonville, N.C.—capable of simulating roadway lighting conditions anywhere in the world.

LIGHTING CONFERENCE

(Continued from page 92)

vinced that an investment in lighting will bring a fair return to the public. The investment is large.

Minimum values are \$40,000 per mile for the first cost and \$4,000 per mile per year for maintenance and operation but these figures are challenged as too low by many who claim they should be doubled or

"The return on this investment is made up of several forms of benefit to the public. Intangible benefits are possibly greater use of the highway at night, some increased ease of policing, pleasing appearance and greater comfort in driving, although many challenge the last benefit. The tangible benefit is reduction in accidents.

"The literature is replete with such data for streets and highways without access control where the value of lighting is justified anyway because the intangible benefits are so great. Bear in mind that a properly designed highway on the Interstate system has no pedestrians, no crossings at grade, a wide planted median so that headlight glare is minimized and adequate shoulders so that few vehicles will ever stop on a through-traffic lane."

"There may be justification," Mr. Barnett continued, "for lighting at interchanges and in densely populated areas where interchanges are frequent, vandals or children may roam across the highway despite fencing, and contrast with lighted streets may be objectionable, but until data on accident experience is available we are guessing."

Get exactly the tread design your job requires At SOUTHERN TIRE!

> AT YOUR SERVICE - the world's most complete range of tire sizes and tread designs in one shop now at Southern Tire Company!

> Whether you operate light or heavy equipment, Southern Tire can supply the tread design and size you need-and save you money at the same time. Superior equipment, including the greatest range of tire sizes and tread designs in the country, and the world's largest and finest three-sectional retreading mold, enables Southern Tire to retread any tire, regardless of growth, without buffing to the breaker strips. This, plus Southern Tire's long experience and use of finest tread rubber, assures you of guaranteed new tire service -and the tread design you need-at less than half new tire cost.

All special service tire sizes from 1100 x 24 to 33.5 x 33. Call your favorite dealer and







414 Broadway SHEFFIELD, ALA

Phone Collect EV. 3-2312

. . . for more details circle 305 on enclosed return postal card



At a moment's notice...

RUNS" to job

under own power

In less than 4 minutes, speedy LeTourneau-Westinghouse Tournatractor® travels a mile under its own power to your next job. This mobile machine drives anywhere at rubber-tired speeds - via highway, or cross-country. Big, low-pressure tires do not damage pavement, curbs, sidewalks or RR tracks. You need no planking to cross blacktop. In moving into any new project, you save time, bother, and expense of, a) shipping by rail, or; b) of locating a low-bed trailer . . . moving in extra men and extra transport equipment . . . loading, blocking, unblocking and unloading.

Not only does 210 hp Tournatractor get to your jobs faster . . . it also finishes them sooner. Four speeds forward to 17 mph and two reverse to 7 mph help you complete most tractor assignments in as little as half the time that it takes the average crawler-tractor.

Figure for yourself what these advantages mean in savings to you:

- 1. Greater speed on the job; completes each assignment faster.
- 2. Roadability; cuts moving costs, and non-pay hours of moving time.

- 3. Fast one-man moves; makes it easy to keep Tournatractor profitably busy at all times, lets you fill in with small jobs between big ones with no idle-time losses.
- 4. Rubber-tired tractor's long range drive-yourself mobility and versatility; lets you move with the seasons, keep busy the year-around.

Tournatractor has proved itself in every climate, under all sorts of weather conditions. It can save YOU time and money. Write or phone for more information on this versatile, high-speed tractor-on-rubber.

CT-1333-DC-1

A major western railroad uses their rubbertired Tournatractor for fast emergency slide-. . over clearing service. Rig follows tracks. trestles...thru tunnels...or travels by highway. Big, low-pressure tires do not damage track, ties, switches, or trip block signals.

Tournatractor often goes where other tractors would bog down. Full-sealed wheels, flywheelmounted generator and electric motors are not affected by water or dust...nor heat or cold. Lubricants do not wash out because oil and grease fittings are water tight.



Owners send Tournatractor job-to-job with confidence. They know its easy-to-handle electricpower controls, and big 4-wheel air brakes, enable Tournatractor to maneuver easily in tight quarters, without interference to traffic. Tractor often tows own fuel and supply trailer.









LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

... for more details circle 331 on enclosed return postal card

WHERE QUALITY IS A HABIT

INSULATED **FORMS**



Prefab Symons forms plus balsam wool insulation made pouring concrete in January easy for C. R. Meyer & Sons Co., Oshkosh, Wisc.

Expedited This Mid-Winter Concrete Job

Highway bridge builders will be interested in how a contractor produced quality forming on a foundation job started in January and saved 50 percent on the cost of heating and curing the concrete. The contractor is C. R. Meyer & Sons Co., Oshkosh, Wisc. This firm set a record on a new \$1,000,000 building at Oshkosh by teaming balsam wool insulation produced by

the Wood Conversion Co., St. Paul, with Symons Standard Wood-Ply panels. Double thicknesses of the 2-in. insulation, in 24-in. widths, were tacked to the forms.

The pour was started when outside temperatures ranged from 5 to 25 above zero. It involved 450 cu. yd, of concrete-22,000 sq. ft. of forming for which 7,000 sq. ft. of Symons forms were used. The 12in. thick walls varied in height from 12 to 16 ft. A total of 18,000 cu. yd. of dirt was excavated for the foun-

The Meyer project engineer was particularly impressed with the flexibility permitted through the use of prefab forms with wool insulation. A Model 34 Lima crane handled the concrete bucket and forms.

Close temperature records were kept. Concrete at the time of the pour was held in the 70 to 80 degree range. After 72 hours the temperature between the backside of the forms and insulation was 82 degrees-this during the 5 to 25 above weather.

In a later pour a tube was cast in the wall 4 in. from the top with a thermometer suspended in the bottom. After 24 hours the temperature at the center of the concrete rose to 106 and after five days the concrete went back to 78.

balsam wool insulation replaced the normally costly methods of tarpaulins or protective enclosures and portable heaters on the job. This eliminated the fire hazard and proved that valuable time can be gained by starting forming jobs in the middle of winter despite cold

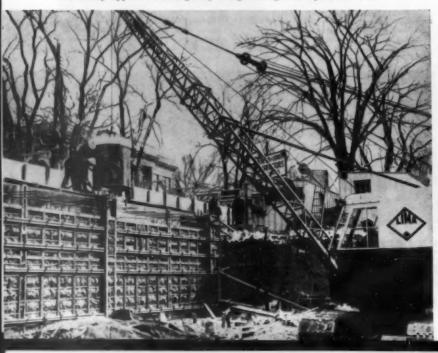
The simple forming system with

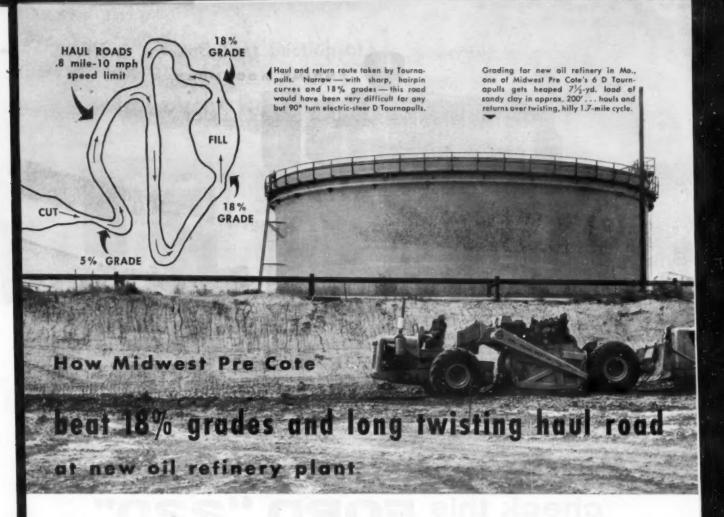
weather.

Pioneer Road Builder Dies

Frank E. Loselle, of Wyandotte, Michigan, pioneer road building contractor in his state, died re-cently at age 73. His contracting career began in 1924 when Edwards & Loselle was formed, later changing to Thon & Loselle, and finally Loselle Construction Company.

· While this job was for a building foundation, its methods are seen to be widely applicable to highway bridge and grade separation work.





To keep up with demands for improved motor fuels, created by millions of modern automobiles, a large oil company is putting into operation a new alkalization plant at Sugar Creek, Missouri. Midwest Pre Cote Company of Kansas City, Mo.—with their six LeTourneau-Westinghouse D Tournapulls—were given the job of moving 85,000 yds. of sand and clay, grading the plant area, building railroad rights-of-way and grading storm sewers.

Narrow haul road - 18% grades

Equipped with built-up tailgates and sideboards, Midwest Pre Cote's fast D'Pulls loaded approximately 7.5 cu. yds. in 200 feet, push-loaded by a 102 hp crawler tractor. The loaded machines then traveled up a 5% grade out of the borrow area. The .8 mile haul road was so narrow and twisting that it permitted only one-way traffic. Heaped loads were spread in thin even layers along a 600' area.

The haul road circled and climbed over grades as steep as 18%. With electric geared kingpin steer, maneuverable "D's" negotiated sharp curves and hairpin turns without difficulty or loss of time. Tournapull's easy maneuverability really paid off for Midwest Pre Cote in steady, profitable production on this job.

6 'Pulls 96.84% efficient

Detailed reports kept by the owner show that entire fleet of six Tournapull scrapers have operated with 96.84% efficiency on this job. The two newest machines have averaged 98.89% for their 822 working hours.

"D 'Pull can't be beat"

Foreman Carl Barnett says, "The dependability of the D'Pulls can't be beat. On a job like this, with six machines working, there isn't any lost time on the pusher waiting to load." The Superintendent, C. P. Daniells, said, "We are very well satisfied with

the machines, and are one of the big users of LeTourneau-Westinghouse equipment in the Kansas City area."

New "D" narrower, with added capacity

An improved D Tournapull is now available. Only 8 feet wide, the new "D" meets 9-ton axle-limit and may be roaded anywhere without special permit. This earthmover has a capacity of 7.3 cubic yards struck and 9 cubic yards heaped.

D 'Pulls will fit your earthmoving needs

Profits in the expanding earthmoving industry will go to contractors who have their equipment fleets always "ready to go" — with the best equipment available. It will be to your advantage to find out how D Tournapulls can increase your dirtmoving capacity and profit possibilities. Ask for full details.

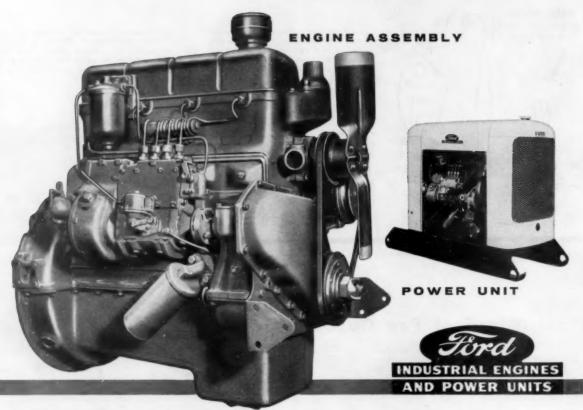
Tournapuli—Trademark Reg. U.S. Pat. Off. DP-1202-8-b



LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

WHERE QUALITY IS A HABIT



For the newest in diesel power... check this FORD "220"

Looking for really *modern* diesel power? You'll find it in the new 4-cylinder Ford "220" Diesel.

Advanced features such as replaceable cylinder sleeves, rotating exhaust valves, aluminum pistons and balanced crankshaft help deliver a full measure of continuous power. In fact, this 220-cu. in. diesel delivers more sustained horsepower at the flywheel than ever before possible in engines of comparable displacement!

Overhead-valve efficiency boosts economy, makes servicing easier. Rigid deep-block construction extends engine life.

Drop in and see your Ford Industrial Power Dealer for full information on this modern, super-efficient Ford diesel. Or write: Industrial Engine Department, Ford Division of Ford Motor Company, P.O. Box 598, Dearborn, Michigan.



WET CYLINDER SLEEVES

Replaceable cylinder sleeves are positively located, yet are easily removable—eliminating costly reboring. Synthetic rubber seal ring at bottom of jacket.



12-VOLT ELECTRICAL SYSTEM

Dependable high-torque 12-volt starting motor provides faster cranking speeds and delivers extra power for quick starts under all weather conditions.

FORD "220" DIESEL ENGINE SPECIFICATIONS

| Basic Model. | X |
|---------------|------------------------|
| Туре | 4-Cyl. Diesel |
| Bore and Stre | ke—Inches3.93 x 4.52 |
| Displacement | -Cubic Inches220 |
| | Dynamometer |
| | Centinuous |
| | Dynamameter |
| | Continuous121#' @ 1600 |
| Compression | Ratio16 to 1 |

INDUSTRIAL ENGINE DEPARTMENT • FORD Division of FORD MOTOR COMPANY
P.O. Box 598, Dearborn, Michigan

YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED!

. for more details circle 269 on enclosed return postal card

Continuously Reinforced Concrete Pavement

THE second of two experimental sections of concrete road, designed to investigate the merits of continuous reinforcement, was under construction in recent weeks in Eastern Pennsylvania. The first section, located on Route 111 north of York, Pa., was completed in 1956 (see Roads and Streets, January, 1957), utilizing special mats of deformed reinforcing steel.

The earlier section at York is considered a pilot job, leading to the more ambitious research program planned for the second section, which is located in U. S. 22 near Hamburg, Pa. The two sections were purposely planned for construction at different seasons (autumn vs. summer), so that the long-range effects of climatic factors during placement could be compared. James Julian, Inc., is the contractor on the second job.

The pavement thickness on the U. S. 22 project is being varied (7 in., 8 in., and 9 in.). And the special subgrade will include a 3-in. and a 6-in. depth. At about midpoint stationing of each design section, the pavement thickness changes, and in the section containing wire mesh, an instrumented test panel consisting of a preformed

crack will be established. At these preformed cracks and also in the immediate vicinity of the crack. strain measurements are to be made in the steel. The reinforcing bars used in certain test sections in all cases, will be No. 5 longitudinal bars and No. 3 transverse bars. The reinforcing steel will conform to ASTM Specifications A15-54T for hard grade steel with minimum yield point of 60,000 psi, and to A305-54T for deformations. One thousand feet of pavement will be reinforced with an equivalent percentage of welded wire fabric using 1/2-in. longitudinal wires, as a comparative test. The steel percentage for the job will be constant at onehalf of one percent.

• In order to determine the magnitude and distribution of horizontal movement of the Hamburg pavement, surface plugs, 100 ft. apart, will be installed in the eastbound lane. The movement of these plugs will be measured by the use of invar types to determine the relative motion of the pavement. The absolute motion will be ascertained

by use of reference monuments off the shoulder.

The study of warping effects of the pavement will consist of three phases. The first will determine the temperature distribution as a function of time and climatic conditions in the pavement, special subgrade and embankment. This will be accomplished by the careful placing of resistance-type temperature gauges at such locations as to develop the vertical and transverse temperature distribution. In the same area that the temperature gauges are placed, the pavement surface will be spotted with transverse plugs, so that the relative profile can be measured. In addition, the transverse No. 3 bars in this same area will be instrumented to determine the warping strains in the steel.

At the time of the writing of this report, it is contemplated that the instrumentation at each test panel at Hamburg will be similar in every detail to the instrumentation at York, so that results may be compared by the same standards.

LIME STABILIZATION

(Continued from page 87)

gal. per sq. yd., covered with topping rock (type B grade 3 aggregate) applied at 1 cu. yd. per 75 sq. yd.

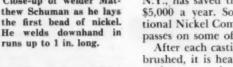
• Personnel. In charge on the Belton project is Neelley Farquhar of Pelphrey Farquhar, Inc., with George Faglie, general foreman. Key Texas highway department personnel include Thomas C. Collier, district engineer (for District 9, Waco); James H. Aiken, district expressway engineer; James Kelley, district laboratory engineer; Joe T. Brown, senior resident engineer, Bell county; T. R. Mathews, resident designer; and Clarence J. Janak, resident engineer.



 Placing steel reinforcing bar mat sections in the first course of concrete, on a test section of Route 22, Pennsylvania.



• Close-up of welder Mat-



Welding Cracked Engine Blocks

with High Nickel Electrodes

 Break in cylinder block, dangerously close to liner, is marked for repair by 55% nickel welding rod.



 Nickel is machined to close tolerance by John French after head has been cooled slowly in furnace oven.



W elding cracked blocks and rebuilding valve seats on the 690-vehicle fleet of the Niagara Frontier Transit System, Buffalo, N.Y., has saved the agency at least \$5,000 a year. So reports International Nickel Company, Inc., which passes on some of the details.

After each casting has been wirebrushed, it is heated at 900-deg. F. to burn out foreign matter and then allowed to cool slowly to about 400 deg. before removal from the oven. The head is placed in a rotating positioner for welding. High nickel content electrodes developed by International Nickel are used. On valve seats, all beads are deposited downhand, are kept short-from 3/4 to 1-in. long-and each is wire-brushed and peened with a round nosed hammer. Usually 2 or 3 passes are enough to rebuild the seat for subsequent machining.

Nickel-iron electrodes with a 55 percent nickel content are used to repair cracks or breaks in the cylinder heads or blocks. Depending on the thickness of the metal and the size of the break, NFT uses either a 1/2 or 3/4 a-in. electrode.

either a ½ or ¾ 6-in. electrode.

Postweld treatment consists of placing the castings back in the furnace and allowing them to cool slowly. All eight heads are treated at the same time. When cool, the valve seats are reground.

The transit system estimates that the procedure should prolong engine life to 8 or 10 years of gradually diminishing service.

\$50,000 in Prizes Offered for Best Welded Bridge Designs

The 1958 program of awards for welded bridge design for Interstate and Defense highways has been announced by the James F. Lincoln Arc Welding Foundation. The objective of this \$50,000 program is to serve the national interest by "encouraging the creation of bridge designs which will save steel and money and which will incorporate attractive features.



... for more details circle 299 on enclosed return postal card ROADS AND STREETS, July, 1957 here ... without a doubt ... is the most useful buying catalog in your office

reasons why you should be a solution of the so

- Catalogs are PREFILED Saving you time and space required to file individual manufacturers' catalogs.
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After checking the advantages listed above, you can see why this ONE CATALOG offers you so MANY advantages . . . saving you both time and money, not only in the mechanical and physical aspects of a cataloging operation . . . BUT MOST IMPORTANT OF ALL . . . it is available WHEN you NEED it . . . BEFORE you make your buying decisions! The manufacturers represented in this catalog are literally 'meeting' with you in your office — offering you all the information you could possibly need concerning their products. Why not meet them at least half way — and USE THEIR PREFILED INFORMATION!



Here are the manufacturers represented in Gillette's Heavy Construction Prefiled Catalog:

Acker Drill Company, Inc. American-Marietta Compa American Steel & Wire Anthony Company Armco Drainage & Metal Products, Inc.
Arrow Manufacturing Company
Austin-Western
Baldwin-Lima-Hamilton Corp.
Barber-Greene Company
Briscoe Manufacturers of
California
Brow Roller & Med. Company Products, Inc. Bros Boiler & Mfg. Company, **Buffalo-Springfield Roller** Company Butler Bin Company Carey Manufacturing Company, The Philip Childers Manufacturing Company, Inc. Chrysler Corporation Clark Equipment Company Cleaver-Brooks Company Cleaver-Brooks Company
Cleveland Formgrader Company, Cleveland Trencher Company, Colorado Fuel and Iron Corp., Concrete Sawing Equipment, Inc. Construction Products Sales Continental Maters Corporation Cummer & Son Co., The F. D. Cummins Engine Company, Inc. Detroit Diesel Engine Division Dart Manufacturing & Sales Co. Erie Strayer Company Flexible Road Joint Machine Company, The
Flintkete Company, The
Gar-Bro Manufacturing Company General Motors Corporation Gledhill Road Machinery Company, The Goodall Rubber Company

Gunderson-Taylor Machinery

Heil Company, The Heltzel Steel Form & Iron Company, The Hensley Equipment Company, Inc. Hough Co., The Frank G. Huber Warco Company Ingersoll-Rand International Harvester Company Jackson Vibrators, Inc. Joy Manufacturing Company Madsen Works Mid-Western Industries, Inc. Miller Tilt-Top Trailer Company Minneapolis-Moline **Naugatuck Chemical** Owen Burcket Company, The Pacific Car and Foundry Phoenix Products Company Pioneer Engineering Works, Inc. Pippin Construction Equipment, Inc. **Presstite-Keystone Company** Republic Steel Corporation Rogers Brothers Corporatio Seamen-Andwall Corporation Seaman-Gunnison Corporation Servicised Products Corporation **Shawnee Manufacturing** Company, Inc.
Stow Manufacturing Company Symons Clamp & Mfg. Company Company, The

Symons Clamp & Mfg. Company
Timken Roller Beering
Company, The
Toncan Culvert Manufacturers
Associated Manufacturing
Tampo Manufacturing Company
United States Rubber Company
United States Rubber Company
United States Steal
United States Steal
United States Fabricaters, Inc.
Viber Company
Waukesha Motor Company
White Instrument Company,
David
Wickwire Spencer Steel Division
Wico Electric Company
Williams Form Engineering
Corporation



No wonder Frank McLaughlin, President of F. J. McLaughlin Co.,

y these NEW

Marshall, Minn., is so well satisfied with his

Apply these NEW JUNIOR TANDEM FEATURES to your job!

YOUR CHOICE OF CRUSHER SIZES

10" x 36" jaw crusher gives extra primary capacity when crushing percentages are high. 10" x 24" jaw crusher meets average conditions. 30" x 18" roll crusher assures production of high percentages of fine-crushed product. 24" x 16" roll crusher meets normal secondary crushing requirements.

BIGGER SCREEN

57

Width of the Horizontal Vibrating Screen has been increased 6" and a half deck has been added. The 42" x 10', 2½-deck screen produces from one to three products simultaneously, from 2" road ballast down to minus ¼".

"BIG PLANT" FEATURES

AT SMALLER PLANT COST

Junior Tandems now available with sand ejector screw and washing spray bars (optional); monotype elevating wheel; delivery conveyor backstop; belt wipers; self-cleaning pulleys; new type adjustable eccentric on reciprocating feeder; larger hopper; separate clutch control on screen.

CEDARAPIDS JUNIOR TANDEM

For some 14 years, Cedarapids Junior Tandems have always been hard plants to beat for high tonnage production. Newly re-designed last year, today's Junior Tandem adds a new kind of versatility to its profitable high capacity. With its bigger screen, and choice of jaw and roll crusher sizes which can be matched or mixed to give big primary capacity, big secondary capacity ... or both ... the Junior Tandem is adaptable to the pit conditions you have to meet.

Only a complete description of every Junior Tandem feature can show you how this plant will fit your profit picture. Ask your nearest Cedarapids distributor for details and production figures.

IOWA MANUFACTURING COMPANY Cedar Rapids, Iowa, U.S.A.

... for more details circle 283 on enclosed return postal card

ONE-TWO PUNCH for Rocky Roadwork



2 FM-4 WAGON DRILLS cut road-building costs three ways

Here's a high-powered rock-drilling combination that can really set the pace for both speed and economy in modern road work. The proved dependability and smooth, trouble-free performance of the Gyro-Flo rotary compressor keeps it on the job, with virtually no down-time for attention or servicing.

The versatility and easy mobility of the Ingersoll-Rand FM-4 Wagon Drills means fast, easy setups on any type of ground. Their tremendous striking power, positive rotation and exceptional hole-cleaning ability add up to maximum drilling speed, even in the hardest rock.

And, used with long-lasting, fast-drilling Ingersoll-Rand Carset Jackbits, this combination has no equal for sustained high production at lowest overall cost per foot of hole or per mile of highway construction.

Whether you need one, two, or three of these heavy-duty FM-4s, there's a Gyro-Flo compressor of ample capacity for the job—a 315, 600 or 900 cfm. The Gyro-Flo line also includes three other sizes, down to 85 cfm, for operating smaller air tools. Ask your I-R representative for complete information on this cost-cutting Contractors' Combination.

Ingersoll-Rand

ONTRACTORS



2-50

ROADS AND STREETS, July, 1957

What's New In Equipment and Material

Reader Service Numbers Are on Enclosed Postage-Paid Postal Card

Spreader for Small Paving Jobs

A new model go Jersey spreader, announced by Tractor Spreader Co., Hasbrouck Heights, N. J., is designed for the smaller paving jobs.

Tractors equal in size and power to the Cat D4, D6; Allis-Chalmers HD-6, HD-9 and International TD9 and TD14 may be used as a propelling unit. Hooking-up is simple and may be accomplished in approximately 30 minutes time. Although only 10 ft. wide, the model 90 is stated to spread in widths from 9 to 12 ft. It has a maximum spreading depth of 12 in., a minimum of 1 in. and is said to lay up to 12-tons per minute.



Jersey Spreader

For more details circle 101 on Enclosed Return Postal Card.

Improved Torque Converter

A higher capacity version of the Twin Disc 11,500 series three-stage torque converter has been announced by Twin Disc Clutch Co. Hydraulic division, Rockford, Ill.

Designated the Heavy-Duty 11,500 series three-stage torque converter, the new unit has a maximum rating of 586 hp at 2200 rpm. Impellers are available for specific torque ratings of 340, 390, 450 and 540 pound-feet. Maximum input torque is 1400 pound-feet.

mum input torque is 1400 pound-feet.
Current production units include the model CF, which provides a clutch at the flywheel, and the model F, which is connected to the flywheel with a driving ring. Both types are designed for SAE No. o flywheel housings.

A Twin Disc C-3 Rear End, with the output shaft supported by two heavyduty roller bearings, is available with either model, permitting maximum sidepull to be taken from the torque converter.

For more details circle 102 on Enclosed Return Postal Card.

Heavy Duty Electric Generator

A heavy duty electric generator for



Electrol Generator

use with trucks and tractors to provide 115-volt single phase power has been developed by Electric Controls, Inc., Wales, Wisc. Designed for both continuous portable auxiliary power and emergency power during service failures, the Electrol GenerAC will operate motors up to 2 hp. The generator can be mounted on and driven by most truck and tractor engines. Mounting kits are available from the manufacturer.

The GenerAC is driven by an electric clutch which provides trouble-free belt drive. The unit is mounted on a bracket that is attached to the engine and connected by belt to the engine crankshaft pulley. It contains only two moving parts, the rotating field and the clutch.

For more details circle 103 on Enclosed Return Postal Card.

Special Features on New Heavy-Duty Diesel Trucks

Reo Motors, Inc., Lansing, Mich.,

announces three 4x2 and four 6x4 trucks; three off-highway trucks; and six tractor models. The single axle units are designed for GVW's to 42,000 lb. and the tandem axle units up to 63,000; tractor models are designed for gross combination weights of 65,000 to 85,000 lb. Power is offered in a choice of nine Cummins heavy-duty diesels with horsepower ratings from 175 to 335.

All models in this series are standard

All models in this series are standard with front axle forward position for states where total combination weights are controlled by bridge formulas, or available with Front Axle Rear position for states where maximum front axle loading is desired and bridge formulas are not a factor.

formulas are not a factor.

Most conspicuous of the various new features is the cab, in which panoramic vision is achieved through use of a top-forward windshield, giving the driver a full view ahead and on both sides without distortion or obstruction. The cab floor is flat and without a "doghouse," and the Bostrom "Level Ride 80" driver's seat is standard equipment. Cabs are available in either steel or light-weight aluminum construction.

For more details circle 104 on Enclosed Return Postal Card.

Two New Bulldoxers

A newly designed bulldozer has been introduced by Henry Manufacturing Company, Box 720, 1700 N. Clay St., Topeka, Kans., for use with the John Deere 420 crawler tractor. Two models are available; the angle tilt dozer ATD-1 and straight dozer SD-1. Both dozers are designed with box steel push beams, outside mounted to insure against springing blade edges. The beam pivot point has been placed below the center line of the tractor for increased traction.

The Henry dozers operate from the tractor's hydraulic system with a single valve Float position makes leveling easy. The cutting edge of the blade, made of heat-treated high car-



Reo Heavy-Duty Diesel

bon steel, is reversible and replaceable. Specially curved mold board rolls dirt ahead for maximum yardage per horsepower.



Henry Bulldozer

For more details circle 105 on Enclosed Return Postal Card.

Backhoe Reaches 15 Ft.

A new backhoe, the D65, introduced by Shawnee Manufacturing Company, 1947 N. Topeka Ave., Topeka, Kan., is similar to a scaled down version of the Shawnee "Scout." It digs 9½-ft. deep, reaches 15 ft., and the hydraulic system provides 6200 lb. of digging force at the bucket teeth. No hydraulics are required on the tractor. The new model has been tested and approved by International Harvester for mounting on the "130." It may also be mounted on other popular-make light industrial tractors. Utility bucket widths are available from 12 to 24 in. inclusive.

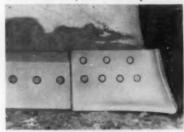


Shawnee Backhoe

For more details circle 106 on Enclosed Return Postal Card.

End Blades for Bulldozers

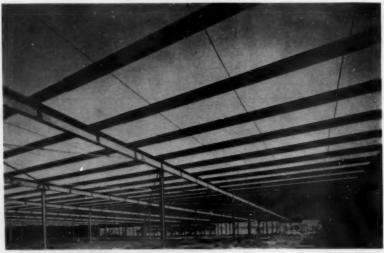
New dig-in type end blades for bulldozers and angledozers, announced by Paper-Calmenson Co., County Road B & Walnut St., St. Paul 8, Minn., are claimed to increase cutting efficiency. Made of high tensile abrasion resisting steel, the dig-in ends are shaped to bite into hard, crusted formations, easing the way for the main cutting edge. The formed point rolls the dirt to the center of the dozer and holds it there so more yards can be pushed.



Dig-In End Blade

For more details circle 107 on Enclosed Return Postal Card.

New Chicago Building Under Way for Clark



Geometry against the sky: erection of structural steel for new quarters of Central Parts division of Clark Equipment Company has been completed recently by Allied Structural Steel Companies. The new building, located on Chicago's south side, will be 682 ft. long, 386 ft. wide, and will include more than 650 tons of structural steel. An adjacent office building, not shown, will bring total floor space of the project to about 300,000 sq. ft.

600 Diesel Rear Dumper

A new 600 hp diesel dumper for offhighway purposes, designated the AP-40 has been developed by Autocar division, White Motor Co., Exton, Pa.

With speeds up to 33 miles per hour, and engineered for 40-ton payloads, the new dump truck, a tandem-rear vehicle, is stated to have revolutionary design features dictated by need for bigness and ruggedness of all components. Planetary-gear drive rear axles, characteristic of the line, reduce torque loads on the differentials and axle



Autocar Dumper

shafts. The planetary-gear reduction is accomplished at the outer ends of the tandem axles.

The AP-40-more than 13 feet high, 31 feet, 10 inches long and equipped with a 27 cubic-yard body—is powered by a V-type, turbo-charged 12-cylinder 600 hp. Cummins diesel.

For more details circle 108 on Enclosed Return Postal Card.

Precision Sickle Sharpener

A sickle sharpener which is said to operate as a cupped-stone precision sharpener and not as a grinder is the product of Shadle Mfg. Co., Minatare, Neb. The stone is of soft material to avoid burning; its pressure is applied



Shadle Sickle Sharpener

with a touch of the hand against the edge and not the sickle placed against the stone.

The machine is all steel with a 1/4 hp G.E. motor, four bronze bearings and four roller bearings on the sliding arms. A reversing switch permits stone to rotate against cutting edge.

For more details circle 109 on Enclosed Return Postal Card.

Street or Highway Flasher

A new portable flasher, designed to control traffic while street or highway repair work is in progress, has been announced by the Eastman Co., of Des Moines, Iowa. It can be used for emergency barricading or, by emitting a flashing red or amber light, the slowing down or stopping of traffic in areas where construction work is under way.

Heart of the flasher, known as the Save-a-Life, is a 6-volt storage battery that can operate continuously for approximately 130 hours, furnishing a

(Continued on page 113)



Fast operation of body hoist is provided by a trailer-mounted 15 hp, air-cooled engine driving a Galion hi-volume pump through an integral gear reduction unit. Electric starting optional.

use any tractor with

GALION SELF-POWERED TRAILER DUMPS

for materials hauling in mixed fleets!

With Galion Model STM (SP) self-powered trailer dumps, there's no need to equip your tractors with hydraulic hoist powering systems! You'll minimize tractor dispatching problems . . . reduce equipment investment . . . use leased tractors at will . . . avoid tie-ups due to tractor break-downs!

Self-powered trailers are ideal for shuttle operations, too. The loaded trailer, dropped by the tractor, is dumped as required while the tractor returns an empty trailer for reloading!

The trailer power unit . . . engine . . . pump . . . control valve . . . oil reservoir . . . is completely self-contained. Best of all, the cost is low!

Interested? Ask your Galion distributor to show you how self-powered trailers can simplify dispatching . . . cut equipment and operating costs . . . increase profits in your fleet!



Trailer power unit has plenty of reserve capacity—handles "tag-along" hoists in train operations with ease.

GALION ALLSTEEL BODY COMPANY . Gallon, Ohio

Distributors in principal cities

. . . for more details circle 279 on enclosed return postal card



Lima Type 604 Dragline excavating trench for storm sewer pipe in Miami. Florida. This machine and the other Lima Type 604 in the background are owned and operated by R. H. Wright & Son of Fort Lauderdale and are both equipped with 45-ft. booms.

Fast-working team of LIMAS leads the way on Miami project

Work really moves along at top speed on this storm sewer job in Miami, Florida, where R. H. Wright & Son is using two LIMA Type 604's. The dragline excavates the trench while the crane follows closely behind laying the pipe—sewer jobs of all kinds are completed fast and economically when you have LIMAS on the job.

Speed, stamina and economy on the job are assured by LIMA's built-in quality extras—such as piston-ring-type dirt seals and retainers in crawler rollers; flame or induction-hardened moving parts for longer life; properly balanced weight for maximum efficiency; anti-friction bearings at all important points; oversize drums and sheaves for long cable life, and long crawler mounting for greater stability.

Get the full story on profit-building LIMAS from your nearby distributor . . . or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.



Lima Type 604 lowering concrete sewer pipe into position on the same project.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

. . . for more details circle 242 on enclosed return postal card

LIMA

SHOVELS · CRANES
DRAGLINES · PULLSHOVELS



BALDWIN-LIMA-HAMILTON
Construction Equipment Division — LIMA WORKS

OTHER DIVISIONS: Austin-Western * Eddystone * Electronics & Instrumentation
Hamilton * Loewy-Hydropress * Madson * Pelton * Standard Steel Works

Another Important Highway Product by AMERICAN BRIDGE

USS AmBridge Highway Beam Guard Rail



Designed and built extra strong to withstand high-impact forces.

Possessing all the design features of the modern universal guard rail section that has been adopted by the majority of State Highway Departments, the new USS AmBridge Highway Beam Guard Rail offers the following extra advantages that make it the finest traffic safeguard available today.

- All mill scale is removed from the steel before the guard rail section is formed, assuring uniform tenacious paint adherence. This is a standard specification.
- Prior to painting, all sections are degreased, given two hotwater rinses, and oven-dried. Then a coat of rust-inhibiting primer is applied.
- Specifications include standard ⁵/₆" high-strength bolts that conform to ASTM A325.

With its combination of these and other such desirable characteristics as rugged strength, ease and speed of installation, controlled flexibility, high visibility, and negligible maintenance, you can count on unsurpassed economy, safety, and permanence of installation with USS AmBridge Highway Beam Guard Rail.

For a copy of our new descriptive folder, contact our office nearest you or write direct to our Pittsburgh headquarters.

... for more details circle 238 on enclosed return postal card

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION - GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.

Contracting Offices: AMBRIDGE - ATLANTA - BALTIMORE - BIRMINGHAM - BOSTON - CHICAGO - CINCINNATI - CLEVELAND - DALLAS - DENVER - DETROIT - ELMIRA - GARY
HOUSTON - LOS ANGELES - MEMPHIS - MINNEAPOLIS - NEW YORK - ORANGE, TEXAS - PHILADELPHIA - PITTSBURGH - PORTLAND, ORE. - ROANOKE - ST. LOUIS - SAN FRANCISCO - TRENTON

UNITED STATES STEEL EXPORT COMPANY, NEW YORK



AMERICAN BRIDGE

UNITED STATES STEEL



Michigan Model 175A loads crushed stone into stationary hopper at end of 480-ft conveyor leading to concrete batch plant.

6,750 cu ft of concrete per hour,

from automatic batching system fed by Michigan Tractor Shovels,

paces Peter Kiewit paving crew

Peter Kiewit Sons' Company, Omaha, started construction of the new Minot (North Dakota) Air Force Base as originally planned for jet interceptors. But when the Air Force decided to base B-52-type heavy bombers there as well, a longer, wider, stronger runway became a sudden necessity. Modified plans doubled width to 300 ft, extended length well beyond the original 8100 ft. Key installation was a 50 ft ribbon of concrete, 16 inches deep, centered along the full length of the runway. To finish the greatly enlarged contract ahead of penalty date,

concrete pours had to average 2,000 cubic yards per 8-hour day.

Kiewit owns 16 Michigans, two used here

Faced with this tight schedule, the Kiewit crew turned to an automatic concrete batching plant and modern high-speed material feeding methods. According to R. D. Wilson, Kiewit Area Manager, the entire paving



operation was planned around the known productive ability of Michigan Tractor Shovels. Two of Kiewit's 16 Michigans, both big Model 175As, were brought in to feed the batching plant via mobile and stationary hoppers and automatic conveyors. Handling 3,200 tons of aggregate per day, these 2¾ yard Michigans had to deliver heaped buckets every time—and they did! Their big loads, delivered fast, kept plant at peak production of 180 batches (each 37.4 cu ft) per hour, day after day

... making the job possible-and profitable!

Michigans eliminate pulverizing problem

One of the major advantages of the Michigans was that, despite their speed, the big low-pressure tires compacted—but never pulverized—the stone underfoot. Thus Kiewit eliminated a major problem—the crushing and grinding of aggregates often experienced when crawlers are used. Trucks delivering the stone dumped at the edge of the air field; there the Michigans took over. These fast, highly-maneuverable units loaded the material, carried it up steep ramps to build and maintain huge stockpiles.

"Fast, dependable, easy to repair"

"Another reason we put Michigans on the job was we knew they require very little maintenance," says Paving Supt Max Woodard. "When repairs are necessary, excellent accessibility makes it an easy job. We've also found these machines have enough power to do anything we want. They're fast, too. Our operators like the way they handle. We like the way they kept those hoppers full. Fuel? One tank of diesel oil (50 gallons) keeps them going all day long! That torque converter's good and the power-shift transmission is a big improvement over other machines. Michigans have done a nice job for us."

Make this test

ls,

Chances are, Michigans can do a "nice job" for you, too, no matter what bulk materials you have to move. But there's an easy way to find out first hand! Simply ask your Michigan Distributor for a free demonstration—no obligation, of course. If what you see looks good enough to buy—and we think it will—your distributor has a wide range of purchase plans . . . including Clark's popular Lease-Purchase which lets you put one or more Michigans to work without spending a cent of capital.

. . . for more details circle 259 on enclosed return postal card

Normal carry position, slightly above ground level, eliminates possibility of stone-crushing dozing action; yet permits high-speed travel without spillage-loss.



Clean design of bucket mechanism gives operator excellent visibility when dumping into hopper.



Another of Peter Kiewit's Michigans serves as allaround handyman on company's Indiana Turnpike contract. This 102 hp 2 yd Model 125A lifts up to 11,000 lbs, carries 5,500 lbs at 4 mph.



Michigan is a registered trade-mark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division

2497 Pipestone Road, Benton Harbor 43, Michigan In Canada: Canadian Clark, Ltd. St. Thomas, Ontario

ROADS AND STREETS, July, 1957

Leading contractors say... K-45 KOMPACTOR most profitable to own

From all over the nation come new contractor reports that Buffalo-Springfield's K-45 Kompactor is regularly saving 50% or more over normal compaction time and costs. These records show that regardless of widely varied materials—K-45 compaction is faster, better and more efficient than was previously thought possible.

Such outstanding results come from the Kompactor's "Interrupted Pressure" principle of compaction . . . its fast speeds of 5 to 6 mph, self-propelled, in either direction . . . its high maneuverability . . . and its ability to work right up close to curbs, culverts and abutments to eliminate costly hand-tamping. These are a few of the K-45's superior performance features that give more to get more than with any other method.

Before you bid another compaction job, check on the K-45 with your nearest Buffalo-Springfield distributor. Let him show you how the K-45 does more work per day per dollar, brings you more profit. Ask him, too, for Bulletin S-67-455, or write today for complete information on this better, exclusive compaction machine. There's nothing else like it available.



Here, the K-45 Kompactor works up close—eliminates hand tamping on this California job.



The K-45 Kompactor meets density specifications in fewer passes, faster, and at less cost.



Compacting adobe on a fill, this K-45 speeds up work for another leading West Coast contractor.



BUFFALO-SPRINGFIELD ROLLER CO.

DIVISION OF KOEHRING COMPANY . SPRINGFIELD, OHIO

What's New in Equipment and Materials

(Continued from page 106)

light intensity of 210 lumens, which is said to be clearly visible even when viewed against the sun. The battery can be recharged simply by plugging a self-contained cord into any 110 volt AC 60-cycle current. The built-in charging mechanism is fully automatic. The timing mechanism, battery and other regulating equipment are contained in a tamper-proof box, and the operating switch is of the key-lock type. The 6-inch wheels, which make the flasher easily portable, are equipped with semi-pneumatic tires and ball bearings. The red or amber lens, visible from two directions, conforms to National Emergency Vehicle specifications.



Eastman Flasher

For more details circle 110 on Enclosed Return Postal Card.

Light-weight Diaphragm Pumps

A new line of light-weight diaphragm pumps, announced by Rice Pump & Machine Co., Belgium, Wisc., is completely new in design. Speed reduction from engine to pump is accomplished in one step by means of a worm gear drive. This drive eliminates intermediate speed reducers on engines and motors. This is stated to make for lighter weight, compactness and more efficient transmission of power.

This new line of pumps is available with suction accumulators and swing type valves as shown with ball check valves. Particular attention has been

devoted to improve valve design and control of interior velocities to prevent clogging under adverse conditions.

The pumps may be obtained with any standard engine or electric motor and may be furnished without power if desired.



Rice Diaphragm Pump

For more details circle 111 on Enclosed Return Postal Card.

Multiple Turbopower Unit

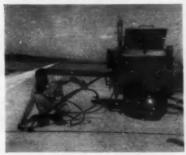
A new multiple turbopower unit has been announced by Detroit Diesel Engine division, General Motors Corp., Detroit, Mich.

The new engine consists of two series "71" 6-cylinder turbopower engines mounted on a common base and driving a single output shaft. The addition of a single-stage, free turning centrifugal exhaust turbine to the series "71" engine is said to lower the fuel consumption yet give more power per pound for all types of construction equipment. The impeller boosts the intake air pressure and reduces the load in the engine driven blower. The result is approximately twice the air box pressure for more complete combustion and scavenging, according to the company. The unit has a basic engine rating of 472 hp at 2100 rpm.

For more details circle 112 on Enclosed Return Postal Card.

30 gph Rubber Joint Sealer

A new joint sealing machine was introduced in May by Middlestadt Machine Co., 4210 Chesmont Ave., Baltimore, Md. Designed for pressure sealing of concrete joints for highways, runways, etc., quality performance is claimed for the Safety Melter because it fills joints from the bottom up, with the seal being smoothed down by a rubber shoe on the nozzle.



Middlestadt Sealer

Features of the sealer include a 30 gph minimum capacity gasoline driven agitator; LP gas heating fuel; mount on 2-wheel, pneumatic tired 1/2-ton trailer with yoke.

For more details circle 113 on Enclosed Return Postal Card.

Backhoe Attachment for Loader

A new OC-46 loader with backhoe attachment, announced by Oliver Corporation, 400 W. Madison St., Chicago 6, Ill., is built as a tractor-loader in one basic, compact unit with simplified trencher mounting. This work package features a 22 d.b.h.p. engine with 4-speed transmission. New design has greatly reduced pedestal height, permitting exceptional operator vision as well as gaining greater loader stability. The new OC-46 has 5%-yd. bucket with increased roll-back and dump angle.



Oliver Loader

For more details circle 114 on Enclosed Return Postal Card.

Pneumatic Hammer Moil Points



Allied Moil Points

A new line of moil points for pneumatic hammers, announced by Allied Steel & Tractor Products, Inc., 7835 Broadway, Cleveland 5, Ohio, are forged from special alloy steels—heat treated to give a balance between toughness and hardness.

"Bulldog" moil points are made in four shank sizes from $\frac{7}{6}$ in. x $\frac{31}{4}$ in. to $\frac{1}{4}$ in. x 6 in. Collar lengths are available in $\frac{1}{4}$ in., $\frac{1}{4}$ in., $\frac{1}{4}$ in., $\frac{1}{4}$ in., and so in. sizes.

For more details circle 115 on Enclosed Return Postal Card.

Cylindrical Slide Rule

A cylindrical calculator, claimed to have an accuracy greater than any slide rule currently on the market, has been introduced in this country by Arthur F. Smith Co., 311 Alexander St.,

Rochester, N. Y.

The new calculator, by spiraling the scales around a tube instead of in a straight line, achieves graduations equal to those of a 66-in. slide rule. The cylindrical calculator may be used to solve all problems involving multiplication, division, proportion, per-centages, logarithms, roots and powers. The instrument can be opened to 101/4 in. by 11/4 in.; its size when closed is 6 in. by 11/4 in.



Smith Slide Rule

For more details circle 116 on Enclosed Return Postal Card.

Industrial Wheel Tractor

First in a new series of wheel tractors, designed for heavy-duty industrial use, is the new model "320" introduced recently by J. I. Case Co., Racine, Wis. The entire unit-tractor-front-end loader, backhoe, engine-is built and factory-mounted by Case.

The new tractor has recessed headlights, steel bumper and radiator guard. Strength is provided by a fabricated steel wrap-around sub-frame which protects engine and transmission and supports mounted equipment. The onepiece, drop-forged steel axle is said to be far stronger than conventional axles.

The tractor is powered by a hightorque 148-cu. in. Case industrial engine which is reported to have the highest compression ratio in its horsepower class. Power steering and a new highspeed shuttle transmission are also available on the "320."

For more details circle 117 on Enclosed Return Postal Card.

LPG Systems for IH Engines



LPG System for Internationals

Liquefied-petroleum-gas fuel systems have been made available for 3 heavyduty truck-type V-8 engines of International Harvester Co., 180 N. Michi-

gan Ave., Chicago 1, Ill. All heavy-duty International trucks, in 4, 6 and all-wheel-drive, conventional and cab-over-engine design, are now offered with factory-installed, Underwriters-listed LPG fuel systems for the company's 6-cylinder and V-8 engines. Horsepower and torque characteristics of the V-8 LPG engines are virtually the same as those of the gasoline version. All the new V-8 LPG engines include a new special combustion chamber specifically designed to use LPG fuel. Combustion chamber design permits high compression ratios.

> For more details circle 118 on Enclosed Return Postal Card.



Case Industrial Wheel Tractor

Lightweight 45 hp Engine



Fageol Engine

A compact, lightweight industrial engine has been announced by Fageol division, Twin Coach Co., 850 W. Main St., Kent, Ohio. Known as the Fageol 44, the engine produces up to 45 hp at 5500 rpm, with running engine weight as low as 160 lb. Powerto-weight ratio of 3.55 lbs/hp is attained, the manufacturer says. Extremely compact, the 44 cu. in. displacement engine measures 235% in. long including SAE No. 5 bell-housing. 15% in. wide and 23% in. high.

For more details circle 119 on Enclosed Return Postal Card.

Air Line Oilers

A new series of line oilers for contractors' air tools and rock drills has been announced by Davey Compressor Co., Kent, Ohio. Known as models DO-1-2-4 and 8, they have capacities of



Davey Model DO-1 Line Oiler

1/2 pt., 1 qt. and 2 qts. respectively. The new Davey oilers operate on the "drop-in-pressure" principle. When air tool throttle is closed, air hose and oiler oil chamber build up to maximum line pressure. When throttle is opened, line pressure in the hose drops slightly and reducing pressure in the oil chamber carries oil through the suction tube into the air hose. This is stated to assure the furnishing of ample oil at the start of tool operation, after which an even flow is transmitted as the result of normal air pulsations.

For more details circle 120 on Enclosed Return Postal Card.

Construction Stake Puller

A new stake puller announced by Universal Form Clamp Co., 1238 N. Kostner Ave., Chicago 51, Ill., is designed to pull stakes quickly and easily

(Continued on page 119)



He's cutting highway costs

This photogrammetrist is plotting precision contour maps from aerial photographs. He's doing weeks of work in a few days, and saving money all the way.

Savings begin with the photographs themselves. Planes can fly higher, cover larger areas with fewer photographs. High resolution and magnification of Balplex Plotter reveal vivid detail for dependable accuracy.

Speed and simplicity of Balplex operation assure prompt completion of maps at scales as large as 1"/50'—at today's lowest cost per map!

And . . . Balplex is the lowest-priced plotter in the entire field! Complete capital equipment for only \$4250. (Reduction printer and centering device optional.)

MAIL COUPON TODAY FOR COMPLETE DATA

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- ☐ Send me B&L Balplex Catalog F-303
- ☐ Send me data on the complete B&L photogrammetric line

Name..

Title

Business Address

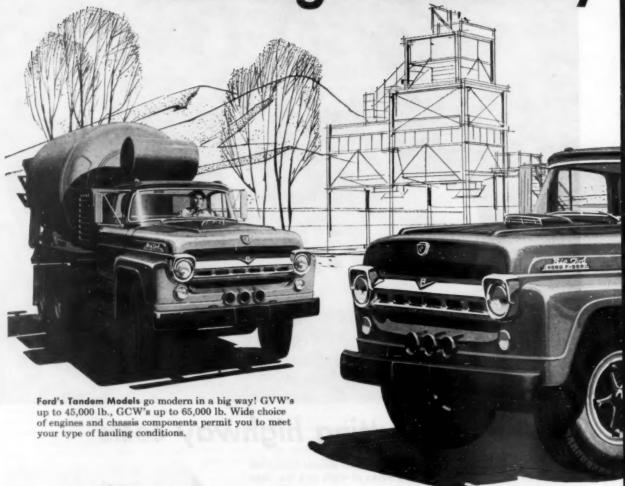
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lana State

... for more details circle 244 on enclosed return postal card

ROADS AND STREETS, July, 1957

The Big Fleets buy



Why?... because onthe-job performance and low operating costs prove FORD trucks cost less

Take a tip from the men who buy trucks every year. Official truck registration data shows that owners of America's biggest commercial truck fleets are buying more Ford trucks than any other make!

Contractors and suppliers, engaged in heavy construction work, have found Ford trucks are best for their fleets, too. To begin with, Ford's initial costs are low. Many models are priced below all competitive makes. For example, the new Ford Tilt Cab models are America's lowest-priced!*

And it costs less to run a Ford truck. Thanks to modern Short Stroke power and sturdy chassis construction, operating costs and "shop time" are reduced. Another important Ford plus is longer truck life—a fact certified by independent insurance experts.

Add it all up—you'll find Ford trucks do cost less! Contact your Ford Dealer . . . let him show you why the big fleets are buying more Ford trucks than any other make.

*Based on comparison of manufacturers' suggested retail prices

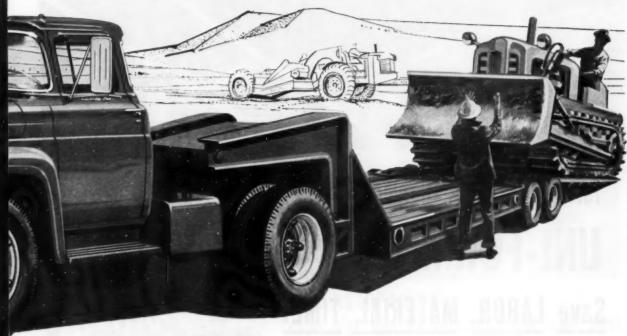
FORD TRUCKS COST LESS

LESS TO OWN

LESS TO RUN

LAST LONGER, TOO!

more FORD TRUCKS than any other make!



Ford's Big Jobs are heavy-duty throughout. New, more durable engines. New stronger cabs and chassis. Up to 45,000-lb. GVW, GCW's up to 60,000 lb.

Representative
companies in the
Construction Industry
that have picked Ford
trucks for their fleets...

McDOUGAL-HARTMANN CONSTRUCTION CO.
Peoria, Illinois

EDWARD H. MEYER CONSTRUCTION CO. Neenah, Wisconsin

M. HOEFFKEN COMPANY Belleville, Illinois

D. B. THORNTON, INCORPORATED Atlanta, Georgia

S & W CONSTRUCTION COMPANY Memphis, Tennessee

KAFFIE LUMBER & BULK BARITES, INC. Corpus Christi, Texas

MYERS & QUIGG INCORPORATED
Washington, D. C.

LATEX CONSTRUCTION CO. OF GEORGIA Atlanta, Georgia PARK CONSTRUCTION COMPANY Minnespolis, Minnespolis

Minneapolis, Minnesota

J. H. DURRANCE COMPANY

BROWN & ROOT, INC Houston, Texas

BUILDERS MATERIAL, INC Coder Repids, lowe

TEXAS BITULITHIC COMPANY Dallas, Toxas

J. H. POMEROY & CO., INC. Sen Francisco, California

WESTERN CONCRETE
Los Angeles, California

B. O. WILLIAMS CONSTRUCTION CO. Richmond, Virginia

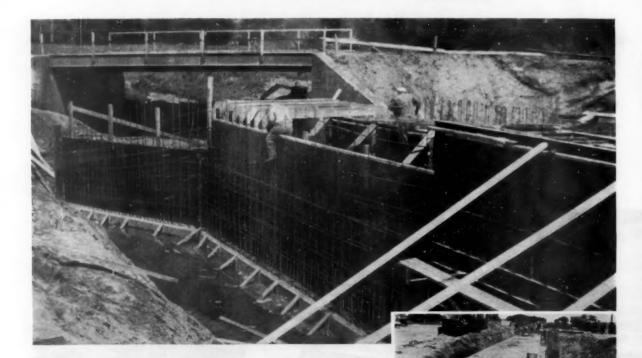
IMPERIAL PAVING COMPANY Oklahoma City, Oklahoma

UNION BUILDING & CONSTRUCTION CORP.
Passeic, New Jersey

BAYER & MINGOLLA Worcester, Messachusett

MORRISON-KNUDSEN COMPANY, INC.

DEL E. WEBB CONSTRUCTION CO. Phoenix, Arizona, Los Angeles, Calif.



forming Bridges, Culverts, Piers?

UNI-FORM PANELS

Save LABOR, MATERIAL, TIME!

Simple mechanical assembly and pre-engineered techniques for handling virtually any forming condition make UNI-FORM Panels your best bet for fast, low cost forming. Successful contractors everywhere are using the UNI-FORM system to form bridges, overpasses, culverts, piers and abutments, because their experience has shown that UNI-FORM Panels give them the speed, flexibility and economy required to handle this complex type of forming at the lowest possible cost.

Let us prove our point. Send a set of plans for detailed forming specifications, recommendations and cost analysis. There's no obligation, of course.

P1501

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Here Are The Basic Elements:



ore details circle 317 on enclosed return postal card

ROADS AND STREETS, July, 1957

What's New in Equipment and Materials

(Continued from page 114)

with no damage to the stake. The puller is adaptable to both wood and The adjustable plate on steel stakes. the jaw will accommodate every type of steel stake, angle, tee, channel, flat or round. It will pull steel pipe or rods 1/4 in. to 21/2 in. in diameter and can also be used as a rod puller to pull rods from concrete walls.



Universal Stake Puller

For more details circle 121 on Enclosed Return Postal Card.

Pneumatic "Aircreter"

A new machine which pneumatically applies concrete and refractory materials has been announced by Engineered Equipment, Inc., Waterloo, Iowa. It handles sand, aggregates and refractory materials; dry or up to 5% moisture content, and is stated to place 1 to 6 cu. yds. per hour or approximately 11/2 cu. yd. per 100 cfm of air. Special feed flow control makes it possible to adjust material flow or to cut off material when free air is desired. Pressure is controlled by air regulator. Construction meets ASME code requirements on unfired pressure vessels.



The "Aircreter"

The "Aircreter" is available in two sizes: large models for production work and portable models for patching and repairing jobs.

For more details circle 122, on Enclosed Return Postal Card,

Improved Low-Lift Pump-Engine

Minneapolis Moline Co., Box 1050, Minneapolis 1, Minn., has designed its 206H-4B and 403-4B pump engines primarily for irrigation, but these units are also available for other purposes requiring low cost low-lift pumping.

On the 206H-4B the pump has 3-in. discharge, 4-in. intake and 12-in. impeller. Capacity range is from 90 psi at 700 gpm to 160 psi at 320 gpm. Unit



MM Pumping Unit

power is up to 43 hp on continuous duty performance.

(Continued on page 125)



The LIMA ROADPACKER . faster high-density compaction at lower cost

The penetrating vibration of six heavy vibrating shoes compacts macadam bases and gravel sub-bases to specified densities. Course aggregate for macadam bases up

to 12" thick can be spread in a single layer, then uniformly compacted to final density over a 13'1" width with the LIMA Road-

packer.
Single spread, which is permissible only with the vibratory method, reduces ma-terial handling by one-half or more-it

eliminates backtracking of spreading equipment and contour shaping is needed only once.

only once.

The action of the vibration "runs in" screenings to full depth of macadam with only three operations. Much of the labor formerly required to spread, broom and roll is eliminated.

The versatile LIMA Roadpacker performs with equal efficiency on both full-width and widening jobs.

Here's how the LIMA Roadpacker speeds up paving operations.

- · Drives to job at 30 MPH.
- · Compacts equally well traveling forward or reverse - no deadheading or turning
- around when two passes are required.
 Covers a 13-ft., 1-in. width, one half of a two lane road.
- · Operator can easily fold end shoes for
- narrower working widths or for highway travel. Shoes are raised and lowered hydraulically.
- · Low maintenance—all working parts are completely enclosed, can even operate under water or dirt. Shoes are driven hydraulically and are pressure-lubricated.

A fact-filled 4-page folder tells how the new LIMA Roadpacker will help you make more paving profits. Write for your copy today.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD



SHOVELS . CRANES DRAGLINES - PULLSHOVELS



BALDWIN-LIMA-HAMILTON Construction Equipment Division - LIMA WORKS

OTHER DIVISIONS: Austin-Western * Eddystone *

. . . for more details circle 241 on enclosed return postal card

New Dorsey Removable Gooseneck Lowboy engineered for

One-man front-loading with EASE

"RG" Models



Dorsey's new, patented hydraulic system brings new efficiency and speed to the field of front-loading trailers! Here, at last, is a unit that **one man** can **really** load or unload **in 10 minutes**. You must see a demonstration of the "RG" to fully appreciate its many improvements over other makes. Here are just two of many new features:



- Very low loading and hauling heights, even with 20" wheels and full spring tandems (for high speed operation).
- Deck can be raised or lowered while loaded and in transit, to pass over or under obstructions.

For every tough job, there's a tougher Dorsey



ELBA / ALABAMA

Ask your Dorsey Distributor for the full story on this newest and most advanced of low bed trailers!

. . . for more details circle 265 on enclosed return postal card

ROADS AND STREETS, July, 1957

70,000 words about 35-ton LORAIN Moto-Cranes

(READING TIME 2 MINUTES)



VIRGINIA Handling precost beams



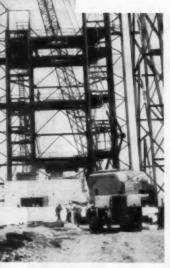
NEW YORK Pile driving



TEXAS Building refinery

COLORADO Erecting transmission towers





CALIFORNIA
Erecting rocket test stand
OHIO



If a picture is worth 10,000 words, then here are volumes of testimony that Lorain 35-ton Moto-Cranes are on the job from coast to coast. These are only a few of the scores of Lorain MC-530W's working profitably for Lorain owners. The reasons are many. "Shear-Ball" mounting—Square-tubular-chord boom—2-lever, "Joy-Stick" air controls—and 8x4, 6x6, or 6x4 carriers are some of them.

Here is a 35-ton rubber-tire crane that is not just on the drawing board, but has had over a year of field operation to prove its worth. It will pay you to check it.

Your Thew-Lorain Distributor can give you all of the facts—and show you an "MC-530W" at work. There's one near you, on-the-job, making money for its owner.



THE THEW SHOVEL CO. Lorain, Ohio

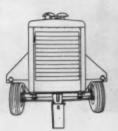
... for more details circle 310 on enclosed return postal card



THEWLORAIN

Announcing

the newest, most advanced air compressor available!



Here's the rotary air compressor you've wanted - one designed with the operator in mind! It's a regular tornado on wheels - delivering a full 600 cubic feet of air per minute compressed to 100-120 lbs. pressure. And talk about economy - the automatic governor control permits the engine to loaf - saves fuel by the barrel!

The Le Roi Rotary 600 is a product of advanced engineering developed and perfected with the highest degree of care.

It features unit construction, allowing major components to be removed, repaired, and replaced without removing adjacent assemblies. This practical design simplifies maintenance, reduces overhaul cost.

It includes every modern compressor feature as an integral part of the design-not as added modifications.

For instance, a hydraulic positive-acting clutch is incorporated in the basic design to permit running the

LE ROI ROTARY 600 ... THE

LIGHTWEIGHT - COMPACT - RUGGED -



engine alone, thus increasing both engine and compressor life. Details like this and many others raise the Le Roi Rotary 600 to a class by itself.

As a result, it delivers air with the greatest efficiency and economy possible — with a machine whose opera-tion and servicing establish new standards of simplicity for air compressors.

The Le Roi Rotary 600 is the only rotary built with Unit Construction, side-by-side individual cylinders!

That means short down-time on repairs . . . all components easily removable without disassembly of other parts . . . unit can be serviced and maintained in the field . . . can be serviced with the simplest mechanic's tools: screwdriver, pliers, crescent wrench...no bearing puller needed... periodic vane inspection is easily accomplished in minutes instead of hours... component parts are less expensive, low-cost items!

SPECIFICATIONS:

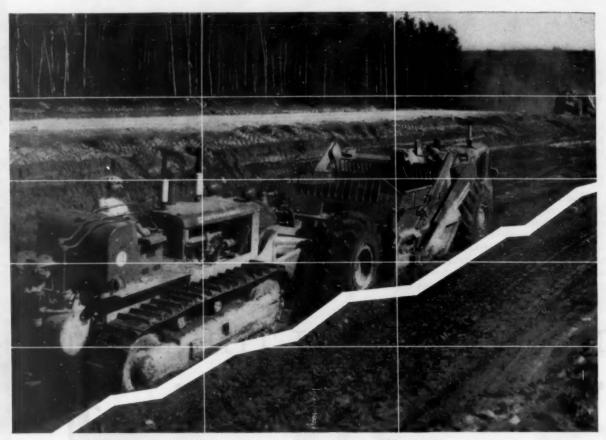
| Capacity (free air) | 600 cfm | | | |
|---------------------|-----------------|--|--|--|
| Discharge pressure | 100 psi | | | |
| Full load speed | 1800 rpm | | | |
| Engine | GM 671 — 6 cyl. | | | |
| Length | 12 ft. 6 in. | | | |
| Width | 6 ft. 8 in. | | | |
| Height | 7 ft. 5 in. | | | |
| Weight (dry) | 7750 lbs. | | | |
| Tires (4) | 7.50 x 16 8 ply | | | |
| Fuel cop. | 82 gal. | | | |

NEWEST WITH THE MOST!



COMPRESSOR

LE ROI ROTARY 600 AIR



Here's a torque converter equipped TD-24 pushloading an International Model 75 Payscraper for H. F. Radandt, Inc. On a comparative basis, the torque converter drive gives the TD-24 a 30% boost in production.

"Production up 30% with torque converter equipped TD-24"

says Henry L. Radandt, H. F. Radandt, Inc.

Put a tractor with mechanical drive along side a similar one equipped with a torque converter, and you'll notice one important difference right away. The torque converter equipped machine does more work!

Superintendent Henry L. Radandt, of H. F. Radandt, Inc., Eau Claire, Wisconsin, is typical of the many construction men who have witnessed this comparison. Mr. Radandt estimates his torque converter equipped International TD-24 Tractor "increases production by about 30% compared to a similar machine with mechanical drive."

The International TD-24 Torque Converter Crawler Tractors prove themselves on every job. The torque converter drive provides up to 6:1 torque multiplication...eliminating engine lugging and stalling. It permits the engine to work in its maximum efficiency range at all times... making available full engine output regardless of the load. It automatically and instantaneously matches output torque to load demands... with gear-shifting minimized or eliminated... for increased ease of handling and operator efficiency. It picks up heavy loads smoothly and evenly and without clutch slippage.

International Harvester Company has standardized on Twin Disc Torque Converter components for its lar TD-24 Crawler Tractor. Be sure you specify a torque converter in your next TD-24. Talk it over with your International dealer today.

Twin Disc Clutch Company, Racine, Wisconsin; Hydraulic Division, Rockford, Illinois.



. . . for more details circle 313 on enclosed return postal card

ROADS AND STREETS, July, 1957

What's New in Equipment and Materials

(Continued from page 119)

The 403-4B unit has a 4-in. discharge, 5-in. intake, and 12-in. impeller. Capacity range is from 90 psi at 1100 gpm to 160 psi at 550 gpm. Horsepower range is up to 68 on continuous duty performance.

Pumps in both models are powered direct from the engine through a gear reduction train, giving speeds from 1400 to 2800 rpm on the pump while still maintaining the slow-speed characteristic of the MM power unit.

For more details circle 123 on Enclosed Return Postal Card.

Sand Blasting Machine

A new model B6 portable Jet-Blaster sand blasting machine has been added to the line of Air Placement Equipment Co., 1009 W. 24th, Kansas City, Mo. The machine has a 650-lb. capacity, handles conventional abrasive materials and has an adjustable flow control. A nozzle for wet sand blasting, and remote controls are available at additional cost.



Portable "Jet-Blaster"

For more details circle 124 on Enclosed Return Postal Card.

All-Position Welding

All-position welding of mild steel with carbon dioxide shielding gas is accomplished with the semi-automatic "Fillerarc" equipment for the consumable electrode, gas shielded process, just announced by the Welding department of General Electric Co., Schenectady 5, N. Y.

No powdered flux of any kind is said to be needed with this equipment. The use of bare fillerwire and carbon dioxide shielding gas simplifies operation and eliminates problems ordinarily related to slag inclusion, flux re-



G. E. "Fillerarc'

moval and recovery, according to department engineers. Deposition rates are greatly increased over conventional stick electrode processes and other consumable electrode methods; and it is stated that vertical and overhead welds can be made without difficulty.

> For more details circle 125 on Enclosed Return Postal Card.

Aluminum Lighting Bracket



P&K Aluminum Bracket

A new 10-ft. aluminum tapered elliptical lighting bracket designed for existing or new utility poles is in production by Pfaff & Kendall, Newark, N. J. It is stated to be the first bracket of this length to eliminate external tie rods and sway braces and to be capable of withstanding 100 mile-per-hour wind loadings. The mounting plate is exceptionally small in area, requiring only one thru-bolt and two lag screws to install.

For more details circle 126 on Enclosed Return Postal Card.

6,000-gal. Sprinkler Tank

A new 6,000-gal., semi-trailer, all-

steel sprinkler tank, developed by Construction Machinery division, Southwest Welding & Manufacturing Co., 3201 W. Mission Road, Alhambra, Calif., has been designed for use with the single-axle Caterpillar DW21 tractor. The tractor-tanker combination is stated to operate on everything from soft fills to hard haul roads quickly and accurately, with a minimum of time and effort. Large 29.5 x 29 tires afford adequate flotation on the softest materials.

Designated the STT-60, the trailer is 10 ft. wide and 11 ft., 10 in. high. The tank section is 18 ft. long, 76 in. deep and 108 in. wide. Wheel base of the trailer is 27 ft., g in. and length of both units is 45 ft.

For more details circle 127 on Enclosed Return Postal Card.

Four-Wheel Drive Tractor

A new 4-wheel drive version of its 355 hp M-R-S 200 tractor has been announced by M-R-S Manufacturing Co., Flora, Miss. Designed for hauling over pioneer type terrain, the driving front axle combines a high degree of mobility with extra traction made possible by hydraulic weight transfer for negotiating extremely rough or spongy hauling surfaces.

With ample power, a static weight of 45,500 lb. and large, low-pressure tires, the tractor is stated to be capable of providing up to 38,200 lb. available tractive effort. An optional differential ratio is available providing a maximum available tractive effort of 44,100 lb. A semi-automatic transmission is employed, giving the tractor nine forward and two reverse speeds with maximum forward speed of 35.18 miles per hr.



M-R-S 4-Wheel Drive Tractor

For more details circle 128 on Enclosed Return Postal Card.

More Equipment News on Page 128



Construction Machinery Tank



Again Flex-Plane has the nation's number one finisher

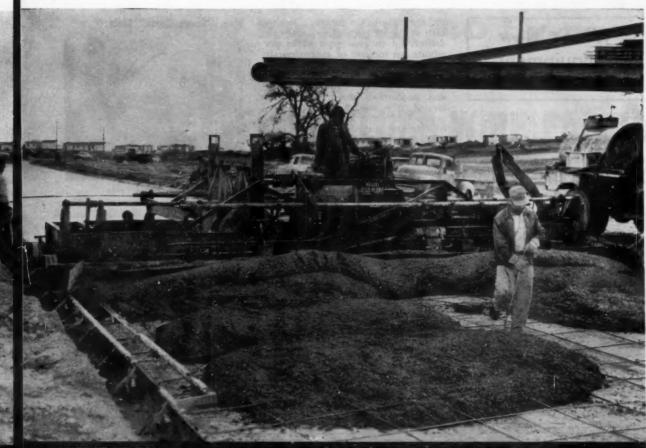
For the past three years, contractors have bought more Flex-Planes than all other makes — They will again in 1957...here's why

From the moment the FLEX-PLANE finisher was introduced it has been the favorite of the nation's highway builders. For the past three years it has been in a class by itself—the most versatile, most flexible, most portable and least expensive to operate of any machine on forms.

Now, for 1957, the FLEX-PLANE finisher is even







TEXAS CITY STREETS Contractor reported highest pouring ever, Credits Flex-Plane. Note amount of concrete in front of screed here.

better! It is more flexible, stronger and faster than ever! Inherent frame design features allow the greatest amount of flexibility—even as much as 12 to 25 feet in one machine! And, there is a complete line of FLEX-PLANES to cover any width range desired. Only FLEX-PLANE self-widening offers independent control of extension frames, which means both sides of the machine can be extended or retracted to-

gether—or individually, for the negotiation of complicated interchange patterns involving variable width and short radius super elevated curves. But, more important, it is the only really proved self-widening machine available today. More than 60 units operating throughout the nation attest to this.

The FLEX-PLANE carries the largest screeds in the industry-delivering the most satisfactory finish possible. Exclusive butt joint screed design enables screed lengths to be changed faster, easier than ever before. It is completely portable—a flick of the finger and it, instantaneously, becomes its own trailer.

Why not let FLEX-PLANE put you in contact with a FLEX-PLANE user? Talk to him and we are sure you, too, will GO FLEX-PLANE IN 1957!



... for more details circle 268 on enclosed return postal card ROADS AND STREETS, July, 1957



THE FLEXIBLE ROAD JOINT MACHINE COMPANY
509 THOMAS ROAD . WARREN, OHIO

261

What's New in Equipment and Materials

(Continued from page 125)

Vibratory Pan Compactor

A compactor recently made available by Jackson Vibrators, Inc., Ludington, Mich., is of the vibratory pan type, with six independent compactor units in the workhead which may be de-



Jackson Compactor

tached and operated individually, grouped or re-grouped to fit job requirements. Power has been stepped up, according to the company, so that each of the six compacting units now delivers up to 4200 3-ton blows per minute, an increase of approximately 2000 lb. per blow over the previous

Specified density is achieved rapidly and production proportionately increased, it is said. Among other improvements noted are a single industrial engine operating both the generators and the transmission. Two generators of 7.5 KVA capacity each supply current for the compactors. Both generators produce single phase and 3-phase, 110-130 volt, 60 cycle A.C., and it is pointed out that, with the compactors removed, the machine constitutes an efficient mobile power plant.

For more details circle 129 on Enclosed Return Postal Card.

Traffic Signs

An all new line of traffic signs has been introduced by Grimm Stamp & Badge Co., 8105 Rosalie Ave., St. Louis 17, Mo.

A new Grimco "Budget" line, these flat silk screened signs have a baked enamel finish on high quality, zinc coated bonderized steel. Over 140 different U. S. Standard wordings and symbols are available from stock. Budget line signs are made either plain or reflectorized.

For more details circle 130 on Enclosed Return Postal Card.

New "Scoot-Crete" Unit



Getman Scoot-Crete

A new machine called the "Scoot-rete," designed for transporting batches of concrete, mortar, plaster, loads of bricks and other materials around building and other construction projects, has been produced by Getman Brothers, South Haven, Mich.

This power buggy has a bed capacity of 14 cu. ft. in the model T-52, weighs 1200 lb. and has a top speed of 20 mph. One man can load, drive and dump the unit which has the power to climb ramps up to 25% grade.

For more details circle 137 on Enclosed Return Postal Card.

More Equipment News on page 148

'My Henry Digs Faster -- Handles More Materials'

-Says Max Reinhardt, contractor of Pontiac, III.

Digging ditches for water and sewer lines is Max Reinhardt's business. His equipment must dig, backfill, handle pipe and load various types of material . . . must do all these jobs speedily and economically.

After thorough testing, his ultimate

After thorough testing, his ditinate choice is HENRY.

He states: "My Henry Backhoe and front end loader digs faster and handles more material than any similar outfit I have operated."

Get full details on the Henry Hydraulic Backhoe Super C-10H and the Henry Industrial Shovel from your nearby dealer. Or write to us for free literature.

"You can do it BETTER with a HENRY!"



MANUFACTURING COMPANY, INC. 1700 N. Clay St. Topeka, Kansas

PARTS AND SERVICE FROM COAST TO COAST



Mr. Reinhardt's HENRY BACKHOE digs a ditch for a sewer line in a Pontiac residential district. Though soil laced with tree roots, digging goes ahead smoothly.



Henry Industrial Tractor Shovel makes quick work of loading excess dirt into dump truck. Shovel easily loads

. . . for more details circle 278 on enclosed return postal card

ROADS AND STREETS, July, 1957

new Highway 40 by-pass gets a sturdy "backbone" with LACLEDE WELDED WIRE FABRIC

OTHER LACLEDE HIGHWAY STEELS ARE...

welded dowel spacers
multi-rib round reinforcing bars
center joints
recess joints
tie bars

MISSOURI HIGHWAY DEPARTMENT

GENERAL CONTRACTOR: Cameron, Joyce and Company Keokuk, Iowa



. . . for more details circle 286 on enclosed return postal card

SAINT LOUIS, MISSOURI

ROADS AND STREETS, July, 1957

Producers of Steel for Industry and Construction

GO-power



leveling fill



finishing between forms



outling ditches



pushing scrapers



scarifying



backfilling



terracing



leveling land for subdivisions



working oil-mix



building road shoulders



bulldozing



spreading base



advertisement

that puts more money in YOUR POCKET



GO-power: to spread heavier lifts on the fill...cut deeper on ditch slopes... travel faster between jobs...back-up faster on shuttle passes...get more work done, every hour of the day. The built-in GO-power of Adamst heavy-duty graders speeds job completion...puts more money in your pocket.

J. D. Adams built the first leaning-wheel grader in 1885. He introduced the first Adams motor grader in 1928; and in 1954 the vast experience and facilities of the J. D. Adams Mfg. Co. were merged with the larger engineering and production capacities of LeTourneau-Westinghouse Company. Thus the Adams grader line, reflecting constant improvement

over nearly three-quarters of a century, gives you today's most modern motor graders. These carefully designed, ruggedly built machines deliver the GO-power you need to handle the bigger, faster grading assignments demanded by you today.

For every kind of work, Adams heavy-duty graders give your operator not just one, but several full-power speeds. With easy-acting controls, he selects gear-ratios that get most work done, with least effort, and with greatest speed. With Adams' wider range of power-speed combinations, you can do up to 25% more blade-work than with competitive graders of comparable power and weight.

turn page for more on GO-power

15 speeds in Adams

Adams heavy-duty graders have an 8-speed constant-mesh transmission (8 standard forward speeds and 4 reverse speeds). For wider work range, 3 creeper gears are available...making a total of 15 speeds...in Adams 150, 123, 104, and 80 hp graders.

You get up to 28% bonus blade-work

Adams graders do more work per day because they provide more working speeds at which maximum engine horsepower can be used. For example, on ditching and other heavy grading work, an Adams 550 takes a big cut, pushes a full blade of dirt, at 4.6 mph. Other 115-125 hp graders do not have this speed-power combination. When full power is required, they have to shift down to 3.6 to 4.0 mph. On jobs that require extra GO-power, the Adams produces up to 28% more work. This added production is FREE; Adams transmission costs no more.

27% extra production on shuttle grading

Most graders have only 2 reverse gears, with speeds to 7 mph. Adams has 4 reverse gears...2 for blading and 2 for high-speed back-up. Many times your operator works a section too short to make turn-around worthwhile...so he backs-up. The Adams higher reverse speeds of 8 and 13 mph get the grader back to its starting point fast... convert otherwise wasted, reverse travel time to profitable production time.

Compare the Adams with some other grader having a top reverse speed of 6.3 mph. On a 400' forward operation, with each grader blading at 4.5 mph, the work takes 61 seconds. At 6.3 mph, the competitive machine backs-up in 43 seconds, while the Adams returns in 21 seconds. The Adams saves 22 seconds on each 400' cycle... has time to make 27% more cycles... does 27% more work.

Extra power...precise control

Adams optional creeper gears provide 3 operating speeds as low as 35' per min. with throttle wide open ... and 22' per min, with engine speed cut-back. These slow speeds concentrate full engine power for scarifying old roadways and blading through sub-surface filled with stones and roots. Creepers eliminate the need for "slipping the clutch" at high RPM to get steady power at slow speed... reduce clutch wear and shock to machine. They also help you cut accurate finish grades, work and maneuver in close quarters.

Cuts non-productive travel time

Adams road speeds to 26 mph hold travel time to a minimum... give you at least 5 mph advantage over most competitive machines. Your Adams gets to the job sooner, and can work later. Just 10 minutes a day saved gives you 4 days of bonus production in a year. And it's FREE with Adams' 8-speed transmission.

"660" smooths 90' wide haul-road at 6.7 mph, for D & M Excavating Co., Morgan, N.J.... speeds haul and return of seven 25-yd. scrapers on million-yard dirtmoving job at Fresh Kills, Staten Island, N.Y.



Trademark

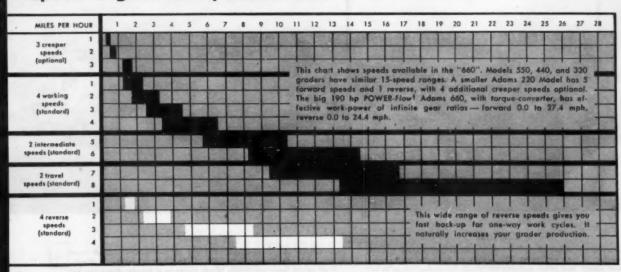


graders give you more **GO-power**



With an Adams grader your operator can match speed to load, apply more power to hard cutting, travel fast job-to-job...get more work done in less time, at lowest cost! That's GO-power in action!

*Speed range of 150 hp Adams 660



GO-power

Extra GO-power

New Adams POWER-Flow 660 gives you maximum push-power at all speeds, 0.0 to 27.4 mph. This extra heavy-duty grader applies 190 hp thru 3-to-1 torque-converter to give you the effective work-power of an infinite number of power-speed ratios. POWER-Flow 660 works thru varying loads at constant speed... will not stall... starts extra-heavy loads without lugging. Torque-converter cushions engine and drive against shock... makes operation simpler. Your best bet on heavy construction work.

Low-cost GO-power

60 hp Adams Model 220 works at 10 full-power speeds...leads its class with 5 forward, 1 reverse, 4 optional low-low creepers. Sturdy 4-wheel tandem-drive provides plenty of push-power for average grading and ditching. Machine cuts costs by releasing heavier graders for the bigger jobs...handles haul-road maintenance, fine grading, and scattered assignments at minimum cost. The low price, and low maintenance of this machine, make it a sound investment as the "second" grader on any equipment spread.









Scarifier

Available as optional equipments strong, rigid V-type scarifier (straight-line type an Model 220) breaks up blacktop, hard-packed gravel roads, and other surfaces too tough for grader blade to cut. Blade can make full revolution without removing scarifier block.

Elegrader

Excavates and loads 400 to 800 yds. of loose materials per hour into trucks; sidecasts 700 to 1500 yds. per hour to elevate roadbeds. High-speed conveyor heaps 10-yd. trucks in a minute. Available for Adams 660, 610, 550, 440, and Caterpillar No. 12 motor graders.

in all 6 Adams† graders



POWER-Flow

660*

190 hp diesel engine and torqueconverter. Biggest, fastest grader in the Adams line. 30,200 lbs. **



660*

An extra-heavy-duty machine with 150 hp diesel engine. 30,050 lbs. **



550*

Heavy-duty all-purpose tool, with 123 hp diesel engine. 26,320 lbs. **



440*

A sturdy, general-purpose grader in the 100 hp class. 24,080 lbs. **



330*

A high-speed worker in the 80 hp class. Diesel engine. 23,020 lbs. **



220

60 hp diesel, with hydraulic controls.

Gives big-grader performance at
low investment, 15,500 lbs. **

*Choice of Cummins or GM diesel engines,

* Weights shown are usual working weights.

Size for size, all Adams graders give you extra "muscle" and more "hustle". Rugged tandem drive ...all-welded one-piece, high-arch wishbone frame... husky front-end...welded short-coupled blade mechanism...all combine to give you a sturdy structure for using Adams great push-power at top speeds.

ASK FOR A DEMONSTRATION. See for yourself how an Adams takes bigger, deeper cuts... pushes

heavier loads... moves dirt faster... moves job-tojob quicker... than competitive machines of similar
size and power. Then consider how Adams GOpower will boost the output of your fleet... speed
project completion... cut costs, and put money in
your pocket. Your nearby LeTourneau-Westinghouse
Distributor will be glad to arrange an Adams demonstration—on your job. Call him for all the facts
and figures, or write us at the factory.

†Trademark AG-1426-G

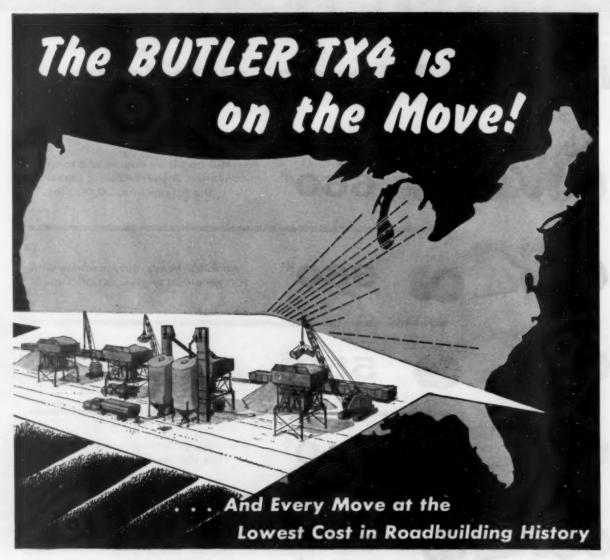


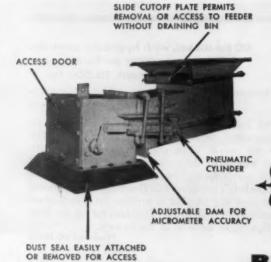
LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

. . . for more details circle 328 on enclosed return postal card

Where quality is a habit





The BUTLER TX-4—the Plant that grows with you

Basic setup handles one or two dual drum pavers. Easily expanded for 3 and again for 4 pavers. Completely automatic batching with only one operator... Fully interlocked against overweight or underweight. Depending upon the number of batchers used — the BUTLER TX-4 easily handles 2, 3, or 4 batches every 20 seconds at each bin.

And the TX-4 is the world's most portable plant. Dismantles and re-erects in a few hours instead of days. Bin section and batchers each ship in one piece. All wiring and air piping are in place ready for quick-connectors. Cuts your moving cost to a small fraction, let's you bid successfully yet make a greater profit.

The New BUTLER AIRFLOMATIC Cement Feeder

Your cement in the TX-4 rides smoothly, positively and accurately on a cushion of air. The most modern, trouble-free and efficient cement feeding mechanism ever developed.

Send today for the BUTLER TX-4 Bulletin. Fully illustrated. Completely describes the plant and all components. Just send a postcard. Ask for Bulletin TX-4.

BUTLER BIN COMPANY

959 BLACKSTONE AVE. . WAUKESHA, WISCONSIN

. . . for more details circle 249 on enclosed return postal card

TO INSIDE OF HOPPER

BROADS AND STREETS



Sturry scaling, as here pictured, in finding popularity not only in a growing list of states but also in a good many cities. More the sturry involving emulation asphalt is being fed to a spreader from a transit mixer drum. Published by Gillette Publishing Company, 22 West Marie Street, Chicago 10, Illinois

Machine-Laid Asphalt Curbs and Gutters

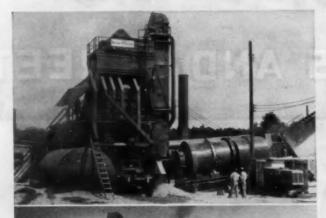
Minnesota Bituminous Program in 1956

MAY 1057

Why this paving contractor bought his 4th BatchOmatic . . .

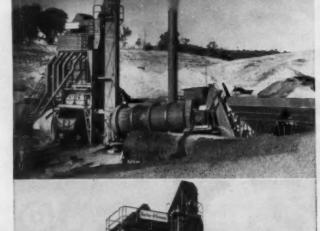
PLANT

AUG.



PLANT NO

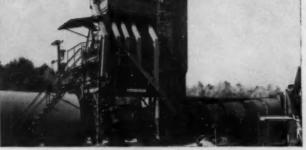
> MAY '56



PLANT

SEPT.

PLANT



Bayer and Mingolla had been in the asphalt paving business for many years before introduction of the BatchOmatic. During these years they had vast experience with many different makes of batchplants, and they are thus ideally suited to judge the merits of the various plants available.

Record production. Bayer and Mingolla's first BatchOmatic is a 4000-lb. Model 894. It had turned out 145,000 tons (including 20,000 tons for the Mass. Turnpike) by October, 1956. Plant No. 3 with a 2000-lb. rated capacity has consistently produced as much as 84 tons per hour.

Record ease of erection. Although set up by a crew completely inexperienced with the BatchOmatic, Plant No. 1 was ready to produce just three days after erection started.

Record low repair costs. The second Model 894 BatchOmatic has produced more than 102,800 tons for turnpike and state work. Total repair costs for this tonnage amounted to \$200 or just 2/10ths of a cent per ton of mix produced. After producing more than 145,000 tons, Plant No. 1 is still using the original paddles and pugmill liners.

Exclusive features include:

Simultaneous weighing of all sizes of aggregate . . . eliminates the human element in achieving accuracy and maximum capacity.

Instant change-over from automatic to manual operation . . . provides mixes for the drive-in trade . . . instantly reset to preset repetitive cycle operation.

New Dyna-Mix pugmill . . . gives thorough coating in less time than any other pugmill.

Instant, positive inspection of aggregate gradation and weight.

Plant No. 4, a Model 894, has just been shipped and will probably be in operation before this ad appears.

Literature on request.



The Practical Man's Stake in Bituminous Design

In starting this series of comments on the passing scene in the field of bituminous engineering, we gave as one of our objectives some help to the practical man in this field. We ventured the opinion that bituminous technology had advanced more rapidly than its application, and that those concerned with many aspects of road building-generally described as the practical phase-were not taking advantage of these developments. This had the implication that our discussions would usually attempt to be both interesting and understandable to this group of readers of Roads and Streets, representing undoubtedly the large majority.

Nevertheless, in the last year or so we have been stressing fundamental deficiencies in bituminous design. This is a part of the road building procedure which is normally confined to a relatively few experts, and supposedly involves great technical knowledge and experience. It is evidently a fair question to ask how we reconcile these two situations.

• Our answer is that we believe the practical man has a considerable stake in bituminous design; that the subject is one which he is quite capable of understanding and appraising from the standpoint of the fundamentals which we have discussed. In fact, it is our suspicion that possibly only through his common sense and clear understanding of these fundamentals will the subject be removed from the area of highly theoretical discussion to practical results, simply by insistence that elementary engineering principles be applied.

In brief, we think the practical man has reason to be considerably concerned with the matter, and that he can do much to clarify the present confusion. We will try to justify both opinions.

His first concern with bituminous design is that its status may markedly affect the volume of business done in the field with which he is concerned, and with which his future welfare is presumably tied up. We believe one of the important factors today competitively limiting the construction of asphalt pavements is the lack of a design approach which clearly does the job in a simple and straightforward fashion. This is rarely given as a reason for avoiding asphalt construction, but it undoubtedly plays a part. The advocates of the various systems presently used claim that they are quite satisfactory in results, are simple to apply, and accurate in their findings. But this is certainly not the opinion of the average engineer in the highway field: he generally feels much safer with other types. Whether this feeling is justified is doubtful, but

• An ironical aspect of this situation is that initial construction to a final design is a questionable policy. The variation from station to station in soils and other factors influencing design is so great that, even with the best techniques, the planned road structures must exceed the need in the majority of the project length to avoid failures at weak points. The penalty for not doing this will be expensive replacement or maintenance. The logical approach is therefore stage construction, even on roads of the highest type. With it an ample base but an initial light (and low cost) pavement can be built to test out these weak spots and permit their correction, until a structure of practically uniform support value for further surfacing is obtained. The economies from this approach are substantial; but unfortunately in most agencies there seems little interest in modifying the bureaucratic approach to suit its needs. So asphalt suffers from a situation which should not too frequently exist.

As the next way in which the practical man is concerned with bituminous design, many other factors in our present development of equipment and methods are dependent upon our knowledge of how the structure acts, and what we are trying to accomplish. Selection of materials; mixing, compacting or otherwise handling them; and many other phases of the construction would progress far more rapidly if we had the better understanding of the action of this type of pavement given by a rational design approach. When we obtain this, these other matters will progress more rapidly.

• Another point of interest is field inspection. Since the design merely approximates the conditions that will be actually encountered from day to day on the job, the inspection and control procedures suffer from any deficiencies inherent in the design approach. Every administrator, every construction engineer, every inspector will be helped when we get bituminous design on a more rational basis; he then can make his decisions more intelligently, and make the final results the aim rather than adherence to arbitrary and perhaps debatable specifications.

If this indicates that the practi-cal man should be concerned with improved bituminous design, the next question is what can he do about it? We maintain that the basic principles we have been expounding in our discussion of this subject are readily understandable by the average practitioner in the highway field; in fact, he needs no engineering training to appreciate most of the points made. It is merely common sense that the design must be based on a sample of the finished pavement that will actually result from the construction procedure followed by exposure to traffic, rather than upon a sample which has been arbitrarily pushed or pounded in some fashion and which, in many cases, has not been truly correlated with the final pavement obtained. It is



Stephens-Canfield curber model-55A placed six miles of asphaltic concrete curb on state route 4 east of Dayton in two weeks, 1956, with 3,900 ft. laid in one day. State highway contract by Boyd & Cook of Dayton. (Photographed by Fred Swineford.)

Progress in Machine-Laid Asphalt

Curb and Gutter Construction

Its assets—economy and simplicity—are gaining this technique new adherents among contractors. The authors of this paper refer to several examples of proven performance on state and city jobs.

Use of asphaltic mix for curbs and curb-gutter construction is on the increase. A review of some of the examples and suggested mix design and methods of placing was given in a paper at the annual meeting of the Association of Asphalt Paving Technologists, Atlanta, February 25-28. Authors were William H. Schuelie, manufacturturers' representative, New York City, and Fred Swineford, highway engineer, Columbus, Ohio.

Excerpts from this paper are given herewith. The complete paper will be available as part of the association's proceedings. This type of construction, because of its low cost, ease of construction and improved durability, is being used as accessory to new road, street, airport, drainage, parking lot and other projects. Rapid placement

and almost immediate readiness are also advantages portrayed; it is also resistant to de-icing salts.

Examples of installations include the following:

A section laid by hand methods on U.S. 50, west of Fayetteville, Ohio, as far back as 1941 is reported in good condition today.

The Maryland state road commission constructed asphaltic concrete curbs prior to 1945 on U.S. 1 between Washington and Baltimore. The commission is currently still using this type.

In 1954 asphaltic curb was machine-laid at an automotive test track in Michigan; the auto company engineers reportedy are very well satisfied after two years of use.

In 1955 six traffic islands were built with machine-laid asphaltic concrete curb at a heavy traffic intersection in New York City.

Curb Machines now available can place up to 2,000 ft. of curb in an 8-hour day. Forward speed (4 to $7\frac{1}{2}$ ft. per min.) and skill of the operator and placing crew are, of course, governing factors.

Guide lines are laid on the existing pavement by string or chalk lines. If the base is uneven, simple angle iron tracks may be laid on which the curber operates. After cleaning the surface, a coating of rapid curing cut-back asphalt or emulsified asphalt is applied as a bond.

Hot mix asphaltic concrete is loaded into the hopper. The mixture is extruded or pushed out through the mold form under compaction pressure by a horizontal conveyor screw, driven by a small air-cooled gasoline engine. This compaction pressure causes the curber to move forward, leaving the formed curb behind it, and makes the curber self-propelled. It's a 3-man operation. No hand-finishing is required.

Some 500 of the make of curber described are in use in the U.S. today. They are laying curbs, traffic

Address inquiry to Ward K. Parr, Secretary-Treasurer, Association of Asphalt Paving Technologists, Rm. 1224, East Engineering Bldg., Box 376 Ann Arbor, Mich.

islands, median strips, drainage control gutters, and bumper curbs.

The authors note that the percentage of mineral filler is important in securing a good mixture.

In using any newly devised mix, experiment to determine optimum composition and temperature. A mix suitable for high-type pavements may not be exactly right for curbs; excess asphalt must particularly be guarded against. A standardized mix has often been developed for automatic curbers and is so specified by some authorities.

Co-author Fred Swineford presented successful hot mix formulae for use with machine curbers. Also given is the mix recommended by the Michigan Asphalt Paving Association. (See table I.)

The paper gives results of tests on curb mix on two Michigan state road projects, using machine laid asphaltic curbing in 1956.

Credit is given to such organizations as the Asphalt Institute, the New Jersey Bituminous Concrete Association, the Michigan Asphalt Paving Association, and many others, all of whom are expending



• Forming a curb in the parking area of the Newark, N. J., airport. (Photo by W. H. Schuelie.)

effort to help develop the best mixes for automatic curb machines.

On large state highway jobs in Ohio, a mile or more in length, bid prices were \$.70 per foot in 1956.

On small jobs for parking areas, bid prices vary from \$1.00 to \$1.50 per lin. ft. due to the cost of moving in and out.

With the average mold, one ton of asphaltic mix will lay approximately 75 ft. of curb. There are 22 standard mold sizes and shapes available (for example) with the "Stephens-Canfield" machine, ranging in height from 4 in. to 12 in., and up to 10 in. width at the base.

One job report noted the laying of 3,900 lin. ft. of curb in one day; another placed 6 miles of curb in two weeks in 1956.

The city of New York is said to have lowered its curb construction cost from \$5.00 to \$.50 per ft. using automatic curbers. Some contractors have reported that their "cost" for labor and material was approximately \$.35 per ft. of curb.

Reliable estimates of the cost of construction an integral curb and gutter by using the "Smith-Field" curb and gutter machine are \$1.25 to \$1.50 per ft. as compared to \$2.00 to \$3.00 per ft. using hand labor and forms.

◆ Two curbers laying asphaltic concrete curbs for dividers and traffic islands on Michigan U.S. 24, at the Willow Run expressway near Dearborn, Mich. Michigan state highway contract by Detroit Concrete Products Co., June, 1956. To complete the dividers, the space between the curbs was filled with crushed rock and bituminous penetration macadam. (Photo: Glenn Manz, Michigan Asphalt Paving Ass'n).



Table I

Curb Mix Recommended by Michigan Asphalt Paving Association

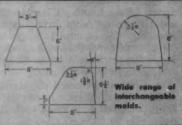
Mineral filler
Asphalt cement
Fine aggregate
Coarse aggregate
Mixing

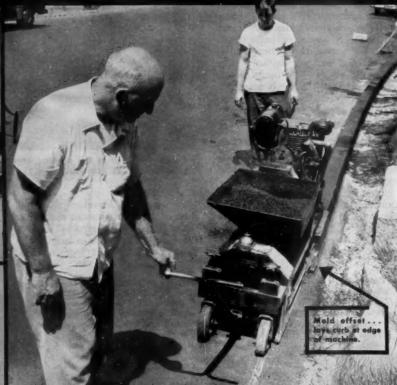
8-10% (3MF)
7-8.5%
40-50% (sand 3BC)
(25A or 31A)

temperature 325° F
Laying
temperature 250°

MEW ETNYRE AUTOMATIC CURB-PAVER







Now you can lay beautiful weatherproof bituminous curbs at speeds of four to six ft per minute without curbing forms! The new selfpropelled Etnyre Heavy-Duty Automatic Curb-Paver lays, compacts, and finishes straight or curved bituminous curbs in one fast, easy trip. Compaction is over 90 per cent, equal to that of a 12- to 15-ton roll!

The exclusive Etnyre heat-jacketed curbing mold utilizes engine exhaust gases to blast-clean and preheat paving-surface ahead of machine, eliminating tack coat in many cases. Mold's inner surface "irons" every foot of curb, producing exceptionally smooth, weatherproof finish. Exclusive offset

of the mold allows you to lay curb along the very edge of the pavement or within one inch of any obstacle.

Machine weighs 750 lb, requires no rails, is easily maneuverable. The two men who operate it require no special training. Designed for fast, easy loading, cannot be overloaded. Compaction screw and screw sleeve constructed of the últimate in abrasive-resistant steel.

If you lay curbs for streets, roads, traffic islands, or parking areas, don't delay in learning the full details of how the Etnyre Automatic Curb-Paver saves money, time, and trouble! Phone your nearby Etnyre dealer, or write E. D. Etnyre & Co., Oregon, Illinois, U.S.A.

SEE YOUR ETNYRE DEALER

ETNYRE

AUTOMATIC CURB-PAVER



. . . for more details circle 267 on enclosed return postal card

ROADS AND STREETS, July, 1957

25 Contractors Took Part in

Minnesota's 1956 Bituminous Work

FACTS and figures compiled for the 1956 bituminous program of the Minnesota department of highways reveal a number of interesting facts:

1. This is really big business today in Minnesota. A total of 21,-900,000 gal. of liquid bituminous materials and 57,500 tons of asphalt cement and SC-5 road oil were used. The SC-5 was for county FAS hot-mix projects and state maintenance work.

Hot mix for the season came to 1,183,000 tons, the largest since the

peak year of 1952.

2. The term "bituminous" in this state means a variety of carefully developed and controlled procedures, each selected to meet particular requirements and cost limitations. The nine classes of construction covered in the specifications, and the mileage placed, are shown in the accompanying table No. 1. The mileage total is 3,549.3.

Liquid bituminous materials used consisted of the following gal-

lonages by types:

| RC cutback2,121,865 | gal |
|-----------------------------|-----|
| MC cutback15,705,490 | |
| SC road oil 2,312,325 | N |
| RCS special cutback 241,578 | 11 |
| RS emulsion 1,130,464 | H |
| SS emulsion 24,743 | m |
| RT road tar \$26.017 | 121 |

3. The single-aggregate class of hot mix continues to be the principal type of mix used. This mix has evolved in Minnesota as the economic answer for this state's combination of plentifully available sands and gravels and its varied traffic densities. The 1956 tonnage totals were as follows:

Specification 2351
Hot asphaltic
concrete 67,252 tons
Specification 2341
Plant mixed surface
(divided aggregate) 544,281 tons

Specification 2331
Plant mixed surface
(single aggregate) .571,082 tons
Total1,182,615 tons

4. Twenty-five contractors using 30 hot mix plants (at more than 30 locations, however) participated in the year's program. Twenty of the plants were of the continuous type and 10 the batch type. A summary of the plant production is given in Table 2.

Seven of the 25 contractors produced in excess of the overall average of 126.8 tons per hour. One contractor produced 44,156 tons of single aggregate mixture on three projects at an average rate of 195.6 tons per hour. This same contractor maintained an overall average production for all mixtures of 170.6 tons per hour for a total production of 71,490 tons. Lowest average production was 25.4 tons per hour.

Production was fairly evenly distributed through the months of June through October. Four per cent of the total mixture was produced in May and one per cent in November.

• Road-Mix Construction. During the 1956 season, 440,000 tons of road-mixed construction was completed on 416 miles of trunk highways. This total includes 79,000 tons of road-mixed surfacing and 361,000 tons of road-mixed bituminous base. Considerable mileage of this bituminous base serves as an interim wearing surface until the hot plant-mix surfacing is placed.

• Density of Plant-Mixed Surface. In general, good densities were obtained during the past season. In the attached charts, the column relating to per cent of laboratory density compares the density ob-

Table 1-Type and Mileage of Bituminous Construction

| Type of Construction | By Construction Division | By Maintenance Contract | Division State Forces | F.A.S. By Counties | Totals |
|---|--------------------------------|-------------------------------|-----------------------------|--------------------------|---------|
| Spec. 2351 Hot Asphaltic Concrete | 9.8 | 2.2 | | * * | 12.0 |
| Spec. 2341 Hot Plant-Mix Surface | 217.8 | 4.6 | | | 222.4 |
| Spec. 2331 Hot Plant-Mix Surface (Single Aggregate) | . 340.5 | 13.4 | | 38.3 | 392.2 |
| Spec. 2321 Road-Mixed Surface | 67.9 | | 479.9 | 449.2 | 997.0 |
| Spec. 2208 Road-Mixed Base | . 349.5 | ** | | 107.1 | 456.6 |
| Spec. 2356 Heavy Seal with Cover | 17.8 | 405.7 | | 71.3 | 494.8 |
| Spec. 2357 Light Seal with Cover | . 17.5 | 685.7 | 49.9 | 37.4 | 790.5 |
| Spec. 2358 Double Seal with Cover | 1.0 | 0.2 | | | 1.2 |
| Fog Seal without Cover | . 37.9 | | | 144.7 | 182.6 |
| Total | .1,059.7 | 1,111.8 | 529.8 | 848.0 | 3,549.3 |

Table 2-Plant Production Data, 1956 Minnesota Program

| Spec. 2351 | Spec. 2341 | Spec. 2331 | All |
|------------------------|---------------|---------------|-----------|
| Contractors 7 | 16 | 18 | 25 |
| No. Plants 8 | 16 | 21 | 30 |
| No. Jobs 12 | 36 | 47 | 95 |
| Total Tons | 544,281 | 571,082 | 1,182,615 |
| Days Worked 135 | 633 | 615 | 1,383 |
| Net Hours 797.0 | 4340.0 | 4191.4 | 9328.4 |
| Net Tons per Hour 84.4 | 125.4 | 136.3 | 126.8 |

tained on the road with the density obtained in the laboratory as compacted by the Hveem method. Sampling of the bituminous surfaces is done at the rate of one per thousand tons of mixture or approximately one per mile. Samples are obtained from 12" to 16" in from the outer edge of the mat, a point that can be assumed to have had the least compactive effort. All density samples are taken by a representative of the laboratory in order to insure uniformity of sampling.

• Surface Riding Qualities. Roughometer readings were made on 444 miles of new plant-mixed surfaces constructed during 1956. Roughness, as measured in inches per mile, ranged from a low of 52 inches on one project to a high of 85 inches. The average for the season was 63 inches per mile which is higher than the roughness recorded during the two previous construction seasons. It was determined that the roughness of 85 inches per mile on the above mentioned project was due generally to faulty construction operations. Twenty-three projects out of thirty-six had readings of 63 inches or less.

Roughometer readings were made on six road-mix surfacing projects totaling 54 miles. Average roughness for the total mileage was 118 inches per mile, with a low of 105 inches and a high of 134 inches.

• Seal Coats. During the past season a total of 1177 miles of seal coat construction was accomplished. Of this total mileage, 424 miles was of the heavy type with coarse aggregate cover and 753 miles was of the light seal coat type using a sand cover. The bulk of the seal coat program was handled by contracts let by the Maintenance division. Eleven contracts were let ranging in mileage from 63 to 149 miles for a total of 1079 miles. Four seal

coat contractors participated in this contract work, one of whom constructed 322 miles.

Special Missouri School Set Up for Highway Technicians

The Missouri Highway Commission has taken steps to meet its increasing need for highway technicians. With co-operation of the Missouri School of Mines and Metallurgy, the commission this sum-

mer is conducting a special training program for sixty such workers.

Effort was made to enroll 20 of the class members from present employees of the department, two from each district. The other 40 were to be enrolled from high school graduates who could meet entrance requirements set up by the School of Mines for all its incoming students.

The course includes eight weeks of college training consisting of 320 hours of engineering, mathematics and slide rule, highway drafting, highway surveying, highway inspection and testing and preparation of highway plans. This will be followed by six months of on-the-job training.

The commission is paying tuition, room and board and \$75 per month for each member during the eight weeks. Upon completion of the course the job-trainee will be paid \$215 per month during his six months on-the-job. Salary then will be \$242 per month, with advancement based on performance.

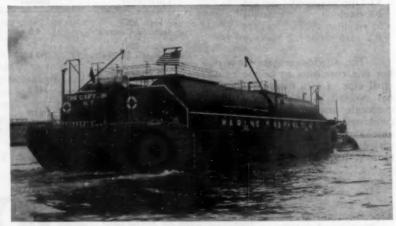
New Company to Ship Liquid Asphalt Materials by Water

Marine Asphalt Inc., of New York City, a joint venture of Russell Bros. Towing Co., Inc., and Hughes Bros., Inc., water transportation specialists, has converted a steel barge for the transportation of liquid asphalt in and around the Port of New York.

The new shipping company's custom-made asphalt carrier is operating between major oil companies along the shorelines and municipal and private asphalt processing plants in metropolitan New York. There the basic asphalt is

treated to meet the requirements of road construction, building material suppliers and other industries.

The vessel measuring 120 x 36 ft., has been equipped with four 27,000-gal. steel tanks insulated with fiber glass. Special steel steam coils are in each tank to handle the live steam necessary to keep the asphalt liquid while in transit. Steam is taken on at the dock during both the loading and unloading operations. The barge carries a maximum of 110,000 gal. of asphalt. Four hours are required to load or pump out a cargo.



 Steel barge converted for transportation of liquid asphalt in and around the Port of New York



Any of the compacting units in the Jackson Vibratory Compactor workhead can be fitted with operating bandle and used exactly like the nationally renowned Jackson Manually Guided Compactors. Perfect for getting into odd spaces and close to walls, etc.—spots that can't be reached by either equipment. One man with a twin hookup of two of these units will campact up to 1,200 sq. yds. of granuler soils in 6" layers per hour.

. . . for more details circle 284 on enclosed return postal card

5 UNITS IN TANDEM AND STAGGERED. VARIABLE FOR A WIDE RANGE OF WIDTHS.

VIEWS AND COMMENTS

(Continued from page 139)

equally common sense that such a sample of the expected pavement be tested by a procedure which duplicates the effects of traffic. These and many other points do not require elaborate theory, involved techniques, or similar to be understood.

There are many involved scientific or engineering problems in the construction of pavements, but at the present time these are not the

source of our difficulties in design. Our basic need is to test-produce exactly what we will eventually obtain, and then stress it in such fashion that we will know how the actual pavement will stand up under the exposure conditions.

In the application of such a design procedure we may occasionally be confronted with some of the difficult technology referred to above, particularly in such matters as asphalt quality, adhesion, and similar. But today most of the difficulties result from the fact that the elementary knowledge avail-

able is not being applied. Instead the results of some arbitrary procedure, which has in general appeared to give success, are adopted rather than designed by selection of a pavement which has been demonstrated in advance to be satisfactory for the conditions anticipated.

We consistently make the point that everyone is benefited by better bituminous pavements for the money available. We think that this applies to the practical man as well as to the administrator or design engineer. We are optimistic that through his common sense approach, in which the primary decisions are not clouded by highly technical discussions, language which may or may not have meaning, and similar, the basic objectives can be obtained. Once this happens, the highly scientific discussions will have their place, and perhaps the elaborate theories will be of benefit. But the results from them will be minor compared to an elementary but basically sound approach to the design problem. Essentially the present need is to construct a simulation of the actual project in advance in the laboratory, then test that structure under conditions that represent reality.

Asphalt Terminal Dedicated

Indicative of the big plans of highway material suppliers to meet future demands of the expanding road program is the dedication of a new asphalt terminal at Panama City, Fla. Built by American Oil Co., this terminal has a storage capacity of 6,510,000 gallons of asphalt. Over 200 state highway people from Florida, Georgia and Alabama, along with contractors and industrial leaders attended the dedication.

A feature of the plant is the equipment for unloading hot oil from ships, asphalt being maintained at 325 deg. F. throughout unloading, storage and re-loading out to users.

Name Schmedding Consultant of Michigan Asphalt Ass'n

• Jan Schmedding has been appointed consultant for the Detroit office of the Michigan Asphalt Paving Association. He was formerly superintendent of street construction and maintenance for the city of Detroit, where he completed 44 years of municipal service. Continuing in his new position, Schmedding will succeed Charles L. Shattuck, who retired last year from the post.



· Engine model has 15 HP VE-4 Wisconsin power.

OTHER PRODUCTS OF STANDARD STEEL ASPHALT DISTRIBUTORS . BURNERS . POWER AND TRACTION DRIVER CONSTRUCTION BROOMS . MAINTENANCE DISTRIBUTORS . YAR RETYLES . AGGREGATE SPREADERS STREET PLUGHERS . . PIPE LINE EQUIPMENT . SUPPLY YAMS SRELLING NAROWARE . AND AGRICULTURAL EQUIPMENT

Standard Steel Works, Inc. NORTH HANSAS CITY MO

Write us or see your dealer for complete details.

Standar

BIG NEWS IN Compaction!



MEET OUR TWO NEW LOW-COST VIBRATORY COMPACTORS

MODEL CK-10 TERRAPAC

VIBRATORY SOIL COMPACTOR

SPECIFICATIONS

......2,300 V.P.M. WIDTH OF DRUM......55 INCHES IMPACT 5 TONS TOTAL LENGTH 88 INCHES TOTAL WEIGHT 3,100 LBS.

ENGINE: AVAILABLE WITH WATER OR AIR-COOLED ENGINE

Two new compactors are coming off the Vibro-Plus assembly line . . . Both are low-cost units, yet each retains high production capacity . . . The model CK-10 may be towed by the smallest rubber-tired tractor to within 11/2" of walls, abutments, etc. . . . The CM-20 is one-man operated and is capable of working speeds up to 75 feet per minute . . . It is ideal for hard to get at areas.

Nowhere will you find compactors with the unequalled efficiency of Vibro-Plus, pioneers in the field of vibratory soil compaction!



SPECIFICATIONS

COMPACTION FORCE NET WEIGHT..... ENGINE: WISCONSIN AIR-COOLED NET WEIGHT 950 LBS.

MODEL CM-20 TERRAPAC

SELF-PROPELLED ONE-MAN OPERATED

AD NO. 41-38



PRODUCTS ORATED STANHOPE. JERSEY

WORLD'S LEADING MANUFACTURER OF VIBRATORY EQUIPMENT FOR OVER TWO DECADES

. for more details circle 340 on enclosed return postal card

ROADS AND STREETS, July, 1957

What's New In Equipment and Materials

Asphalt Patching Mixer

Designed for use with asphalt cements, cut-backs, emulsions, or tars, this HTD Mixer No. 8 of McConnaughay Mixers, Inc., Lafayette, Ind., is available with or without a 200-gallon asphalt supply tank. Large enough for many resurfacing jobs as well as for all types of pavement patching, the No. 8 has a mixer capacity of 8 cu. ft.: the aggregate bin is marked for volumetric measuring. The unit features a low pressure burner and power-driven asphalt pump and counter. It weighs 3,800 lb., measures 124 in. in length, 82 in. width and 114 in. to the top of the stack with extension attached.



McConnaughay Mixer

For more details circle 131 on Enclosed Return Postal Card.

Hydraulic Bucket Leveler

A "Fifth Cylinder" automatic hydraulic bucket leveling device is a new feature on the Henderson "Chief" hydraulic loaders, now being manufactured by Henderson Manufacturing Co., Inc., Cedar Rapids, Iowa. Mounted on the left frame support, the "Fifth Cylinder" is said to replace the old style linkage principle and allow the operator complete freedom for tractor operation.

The 12 gpm hydraulic system is stated to lift 1750 lb. to full height in 6 seconds and down in 3 seconds; chrome hi-carbon steel rods and double-



Henderson "Chief" Loader

acting cylinders throughout; fingertip control of all hydraulics. The steel box frame is electric welded to form a single shock-resisting unit, offers full view operation, and convenient step-on side mount design.

For more details circle 132 on Enclosed Return Postal Card.

3-yd. Hoe Attachment



Link-Belt Hoe Attachment

A new 3-yd. hoe attachment, announced by Link-Belt Speeder Corp., Cedar Rapids, Iowa, is designed for use with the Link-Belt Speeder 3-yd. model K-608, introduced in early 1956. With the introduction of the new hoe attachment, the K-608 can now be used as hoe, shovel, crane, clamshell or dragline. Its 30 ft. boom, plus arm and bucket, provide a maximum reach of 51 ft. 6 in. and digging depth of 31 ft. 10 in. Cutting width with side cutters is 5 ft.

For more details circle 133 on Enclosed Return Postal Card.

Hole Digger



Roper Hole Digger

An automatic digging tool claimed to dig 25 ft. holes in 6 minutes has

been put on the market by the Roper Manufacturing Co., 178 Elm St., Zanesville, Ohio.

Interchangeable augers, from 6 in. to 24 in. in diameter, are available with the digger—which does not need power transmission drives in order to operate. Digger will dig a straight or angle hole from any jeep, truck, or tractor equipped with front or rear boom and winch. The digger does not require one or two men to ride the auger in order for the auger to dig. The weight of the gasoline motor mounted directly above the auger is more than sufficient. Finger tip controls make it easy for one man to operate.

For more details circle 134 on Enclosed Return Postal Card.

Small Truck Hydraulic Hoist

A new hydraulic hoist, suitable for conversion installation on 3/4 and 1-ton trucks, has been announced by Hercules Steel Products Co., Galion, Ohio. Designed for use under Hercules light duty dump bodies up to 8 ft. in length, platform bodies up to 10 ft. long, or 61/2 to 91/2-ft. pick-up bodies, the new hoist is known as model 440. According to the manufacturer, the optimum capacity of the hoist is 6 tons.

Model 440's dual ram-type 4-in. cylinders are placed ahead of the truck rear axle. This provides peak hoisting efficiency, it is claimed. The new hoist has a dumping angle of 45 degrees and an 8%-in. mounting height. It has been designed for installation on trucks having a CA dimension of 46 to 60 in., with either kick-up or straight frames.



Hercules Hoist

For more details circle 135 on Enclosed Return Postal Card.

Light Welding, Cutting Kit

A new light-duty welding and cutting outfit placed on the market by Airco Co. International, division of Air Reduction Co., Inc., 150 East 42nd St., New York 17, N. Y., is designed for duty in the light to medium range.

The outfit is designed to handle

The outfit is designed to handle welding, brazing, heating, and cutting operations. It will weld metals up to 1/16 in. thick, or up to 1/16 in. if larger tips are used, and cut steel plate up to an inch thick.

All the equipment necessary to do a welding or cutting job is included in the light-duty outfit. Two style 8000 single-stage regulators twin 1/16 in. gas hoses with connections, the style 400 lightweight welding torch with a mixer and two tips, and the style 1490 cutting attachment with one tip are the major items supplied.

For more details circle 136 on Enclosed Return Postal Card.

Self-Priming Pump

A newly improved, heavy-duty selfpriming pump which gives higher capacity than the previous model has been added to the line of McGowan Pumps, 58 Central Ave., Cincinnati 2, Ohio.

Replacing the former 15M, the new model uses an improved spring-loaded lubricator for the seal, requiring less frequent attention in operation. It is easy to start, and requires a minimum of maintenance. The pump's case has been re-designed for greater hydraulic efficiency. Corners have been eliminated, to provide less turbulence and smoother flow. The pump is available wheel-mounted and can be furnished with high-speed trailer hitch. The model is rated at 15,000 gph.



McGowan Model 15M Pump

For more details circle 138 on Enclosed Return Postal Card.

Long-Life Lamps

A lamp life of 5000 to 6000 hours is cited by Verd-A-Ray Corp., 615 Front St., Toledo 5, Ohio, as a major factor of economy and operating dependability in traffic signal systems.

Two special design considerations

Two special design considerations are introduced to assure such life, it is said, in the Verd-A-Ray lamps—extra supports for the filament to protect it from the vibration damage of heavy traffic—and a type of filament especially resistant to injury from the voltage surges occurring at every off-and-on "blink" of the signal. Standard ratings are 40, 60, 67, 100, and 150 watts.

For more details circle 139 on Enclosed Return Postal Card.

Improved Gradall System

The remote control system of the Warner & Swasey Gradall has been further improved, the company says.



For Pre-Mix or Mix-in-Place...

KLING scores every time!

Three-Out-Of-Three Among Major Asphaltic Paving Projects

Kling Heat Stable Beta was the antistripping additive used in all three major projects: East-West Massachusetts Turnpike, Kansas Turnpike, and widening and extension of the New Jersey Turnpike. Contractors choose Kling because this readily compatible compound ends delays . . . facilitates the coating of stone with asphalt . . . creates a lasting bond which does not strip under moisture conditions.

Four-To-One Among Asphalt-Producing Refineries

Kling Superconcentrate is blended into cutbacks by more refineries than any other asphalt additive—four-toone over its closest competitor. Plants prefer Kling because this potent, 100% active compound is more highly concentrated . . . for easy handling at low cost.

Kling XX Concentrate . . . preferred for field use . . . is shipped daily by the carload and truckload to state highway departments, contractors, and asphalt plants all over the nation. Rapidly and simply blended with cutbacks, it pours and pumps without dilution or heating . . . gives superior results in blading, seal coating, and patching . . . can be used with wet stone . . . provides highly stable mixes for durable retention, longer road life.

FREE-PROVE TO YOURSELF

how Kling compounds can solve your asphalt-additive problems more efficiently and economically. At your disposal for testing, demonstration, and meeting special requirements are the fully equipped Kling laboratories and a trained field engineering staff. For technical aid without cost or obligation, contact:

KLING

Division Lancaster Chemical Corp.

Broad and 13th Streets · Carlstadt, N. J.

FOR 25 YEARS—SERVICE TO THE ASPHALT INDUSTRY



The control panel in the operator's cab has been redesigned with the addition of temperature and oil pressure gauges to tell the operator at a glance if the carrier engine is functioning properly. A red light indicator tells the operator instantly whether the generator is charging or discharging. A new positive-action air cylinder handles the power shifting of the undercarriage with the twist of a dial mounted on the panel. The cylinder is employed only when the remote control system is being used. The deadman safety brakes are automatically set should a failure develop in the air pressure system, and air-electric controls are said to give instantaneous response to even the slightest touch.

For more details circle 140 on Enclosed Return Postal Card.

Digger-Loader Combination

A new digger-loader combination has been announced by Badger Machine Co., Winona, Minn. The back-hoe is the new model 80 RTM 57, featuring a 180 degree swing, an 11 ft. digging depth and full hydraulic operation. The front end loader is the Badger model 75, built for a loading height of 8 ft. and 150 degree bucket tilt. Digger and loader may be mount-



Badger Digger-Loader

ed on several of the larger rubber tired industrial tractors.

> For more details circle 141 on Enclosed Return Postal Card.

Friction Power Take-Off

A new air-operated, remote-controlled friction power take-off is announced by Twin Disc Clutch Co., Ractine, Wisc. It is available for use with engines up to 600 hp output in any industrial application where a standard power take-off is used.

This air-operated power take-off combines the Twin Disc model PO air clutch (replacing a mechanically-actuated clutch) with the standard Twin Disc friction power take-off. Engagement and disengagement is accomplished by the turn of an air valve, rather than by a manually-operated

For more details circle 142 on Enclosed Return Postal Card.

Electric Erasing Machine

A new electric erasing machine, announced by Frederick Post Co., 3650 N. Avondale Ave., Chicago 18, Ill., has been developed especially for the engineer and draftsman for faster erasing with minimum fatigue. Called the "Sovereign," this new machine stays cool under heavy work conditions, has minimum torque and automatic stall control to protect drawings against damage from too heavy pressure. The erasing machine is lightweight and easy to handle.

For more details circle 143 on Enclosed Return Postal Card.

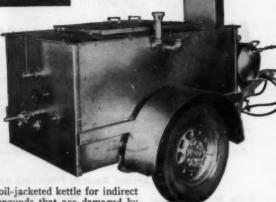
Heavy Duty Dump Bodies

Three new heavy-duty "Speedlift" dump bodies, announced by Daybrook Hydraulic division, L. A. Young Spring & Wire Corp., Bowling Green, Ohio, are designed for extremely rugged operations. These excavator style bodies, with "box" type side braces, are designed for loading, hauling, and dumping large stone, boulders, broken concrete, bulky chunks of material and similar loads.

These dump bodies feature special safety design of "dirt-free" sloping running boards, tailgate horizontal bracing and bottom structural channel that prevents accumulation of dirt or stone during loading operations.



... FOR LOWER COST
MELTING OF JOINT
COMPOUNDS



TOP QUALITY, oil-jacketed kettle for indirect heating of compounds that are damaged by high temperatures.

FOOLPROOF manual burner adjustment.

LOW COST of \$1100 f.o.b. factory, complete with two thermometers (one for heating-jacket oil, one for compound), manual agitator, oil burner, steady rest, towing eye, tires Engine agitator or propane hearing available.

CAPACITY: 120 gallons of compound

FOR LITERATURE, WRITE

WHITE MANUFACTURING COMPANY, ELKHART 2, INDIANA

. . . for more details circle 320 on enclosed return postal card

OTHER PRODUCTS

Asphalt Plants.

Tool Heaters,

Surface Heaters,

Torches and Burners



. . . for more details circle 307 on enclosed return postal card

All 2g of the three series have reinforced, heavy-duty understructures; rugged, full height corner posts; improved design, double-acting tailgates—50% stronger with practically no increase in weight; a choice of heavy-duty hardware; and a new, improved method of adjusting tailgate spreader chains.

For more details circle 144 on Enclosed Return Postal Card.

Masonry Saw Mounting

The Clipper Manufacturing Co. has announced a new "Wheel-A-Bout" accessory for its 2 hp "Supermatic" masonry saw.

"Wheel-A-Bout" is stated to provide instant mobility. Wheels are quickly attached, can retract or lower in seconds. Stow-away handles recess when not in use. One man moves the machine easily, the maker says.

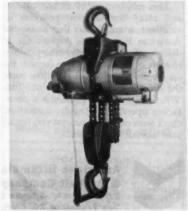


Clipper Wheel-A-Bout
For more details circle 145 on
Enclosed Return Postal Card.

4,000-lb. Air-Powered Hoist

A new 4,000-lb. capacity hoist has been added to the line of air-powered hoists made by Gardner-Denver Company's Keller Tool division, Grand Haven, Mich.

Fitted with either roller or link chain, the lifting and lowering speed varies from a creep to 10 ft. per minute at full load and 90 psi air line pressure. Length of lift is 8 ft. and the hoist operates with either a one-hand



Keller Hoist

control bar or remote pendant control.

The hoist weighs 100 lb., is equipped with swivel-mounted safety suspension and load hooks. Hook-to-hook dimension is 231/2 in.

For more details circle 146 on Enclosed Return Postal Card.

"Tilt-Crown" Dozer



Case Dozer Blade

A new "tilt-crown" bulldozer blade announced by J. I. Case Co., Racine, Wis., can be tilted 14 in. to either side as well as tipped 10 degrees fore or aft by hydraulic power, right from the operator's seat. The new feature is said to offer special advantages for ditching, road-crowning, cutting tree roots, breaking-out hard ground, etc. Blade is activated by 4 large hydraulic cylinders.

Two cylinders mounted on the dozer push arms control tilt and tip. The other two cylinders, trunnion-mounted on the tractor, exert down-pressure with the blade in any position and also lift blade 34 in. from ground level. Exclusive center-pivot mounting is said to make it possible to tilt moldboard without twisting tractor or track frame.

For more details circle 147 on Enclosed Return Postal Card.

Power Digger Offers Speed



Sherman Power Digger

A completely new power digger for mounting on Ford tractors, introduced by Sherman Products, Inc., Royal Oak, Mich., is stated to feature fast digging.

A new hydraulic system contributes to the machine's gooo lb. breakaway capacity. It is extremely compact in design to permit short hydraulic lines which minimize friction power loss.

Another contributing factor is the pump drive from the tractor PTO at the rear, which, through an exclusive Sherman planetary step-up transmission, develops greater digging speed.

> For more details circle 148 on Enclosed Return Postal Card.



GRACE Asphalt and Compaction Equipment



Rapidspray Maintenance Distributors.
Also heaters for production melting
of barreled asphalt.



Rapid Fire circulating heaters heat and unload large tanks of asphalt.



Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.



Pneumatic rollers 7 to 50 tons.

W. E. GRACE MFG. CO.

Dallas, Texas

. . . for more details circle 276 on enclosed return postal card



TANDEM SPREADING of the Asphaltic Concrete speeded the resurfacing work as . . .

Bitumuls and Asphalt Put New Life in Famous Ridge Route on U. S. Highway 99

In June of 1956, a contract for one of the largest resurfacing jobs to date was let by the State of California Division of Highways. This contract called for more than half a million dollars of resurfacing on a 41 mile stretch of the Ridge Route (U.S. Highway 99) between Los Angeles and the Kern County Line.

Because various types of existing pavements were involved in this project, the requirements for asphalts and Bitumuls to be used in the resurfacing operations were quite complex. For instance, the job called for 21 miles of multi-lane Asphaltic Concrete resurfacing; 13 miles of sub-sealing, crack-sealing, and priming of old rigid-type pavements ahead of resurfacing; 8 miles of sealing and priming of existing bituminous 4-lane roadway; and extensive shoulder work.

To meet these requirements, the quantities of asphalt and Bitumuls required are impressive; for sub-sealing, 1,700 tons of Grade 10-25 Air Refined Asphalt; for resurfacing, 3,500 tons of 200-300 Penetration Paving Asphalt; for seal and prime work, 140,000 gallons of Bitumuls.

Timing and coordination vital

Successful bidder on the job was Schroeder & Co., Sun Valley, California. Completion of the work was scheduled for January 1957, so speed was essential. Also, close coordination was required between the Engineers on the job and the Field Representatives of American Bitumuls & Asphalt Co. (supplier of all bituminous materials) to assure accurate timing and delivery of specific types and quantities of these materials.

On the old rigid type pavements,

slabs were drilled and sub-sealed with Air Refined Asphalt. Cracks and joints were filled and sealed.

Asphaltic Concrete (Paving Asphalt mixed with ½ inch to ¾ inch maximum-size aggregate) was plant mixed and trucked onto the job where it was spread in two lifts, to provide a uniform 3 inch thickness. Using two spreaders equipped with special shoulder extensions, this mix was placed to a full width of 37 feet in a single pass.

The existing bituminous pavement required only a 1 inch overlay of Asphaltic Concrete, as opposed to 3 inches specified over the rigid-type section. Ahead of the placement of this 1 inch thickness, Bitumuls Slurry Seal was used to seal and prime the old surface.

All asphalts from a single source

This job, because of its unusual size and many complexities, provides an excellent example of the ability of American Bitumuls & Asphalt Co. to deliver a full line of asphaltic products to meet every need; and to furnish the on-job field-service that can often mean the difference between profit and loss. Whether your next project is a resurfacing operation or new construction, check with our office nearest you for all your asphalt requirements.



BITUMULS SLURRY SEALING ahead of resurfacing on the existing bituminous roadway.



American Bitumuls & Asphalt Company 200 Bush Street San Francisco 20, Calif.

. . . for more details circle 237 on enclosed return postal card

ROADS AND STREETS, July, 1957

HIGHWAY ENGINEERS DESIGNERS DETAILERS

FOR OFFICE WORK IN ST. LOUIS ON HIGHWAYS EXPRESSWAYS AND ASSOCIATED CIVIL WORKS

- · Permanent employment for qualified men
- Ample opportunity for advancement based on merit
- Generous transportation & moving allowances

Plus Emproyee Benefit and Retirement Plan, Paid Vacations, Holidays, Sick Leave. Blue Cross available.

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SVERDRUP & PARCEL ENGINEERING CO.

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ST. LOUIS 1, MO.

ENGINEERS - FOREMEN - OFFICE MEN Learn latest methods to organize and run work. Prepare for the top jobs. Send post card for details.

GEO. E. DEATHERAGE & SON CONSTRUCTION CONSULTANTS
P.O. Box 921 Lake Worth, Florida

WANTED

To Turn Into Cash Priced For Quick Sale

Barber-Greene 24"x80' Portable Conveyor S.N. 374x124, new last fall, perfect con-dition

Butler Concrete Batch Plant, Complete Two V50 2-compartment aggregate bins Coment bin and storage bin Complete with undertrack screw, coment elevator, and twin scales. Can be con-verted easily to automatic operation.

-Model C-Turnapulls Serial #GM-973780 -CR & Gt-4708—FCR-W have been used very little. Rubber fair on one—Excel-lent on other.

D-7 HI-Lift, S.N. 978441

Tri-line Concrete Saw, S.N. TL-A-105

Cleveland Form Tamper, S.N. 322X58

We Repeat These units are priced for quick sale

J. M. Corbett Co. 2500 S. Corbett St. Chicago 8, Illinois CA 5-5280

Write, wire, or phone collect

STEEL SHEET PILING
418 PCS. BETH. AP-3 - 20' and 25'
160 PCS. BETH. DP-2 - 30' and 40'
9000 PCS. LARSSEN 11 - 20' and 40'
STOCKS AT NEW ORLEANS & JACKSONVILLE
THE SEABOARD STEEL CORPORATION
Tel. Ringling 7-0461
4521 South Tamiami Trail
SARASOTA, FLORIDA

GOOD BUYS SHOVELS - TRUCKS

Euclid Trucks-2FFD (35 Ton), 60TD (22 Ton), 63TD, 80FD, 27FD.

2400 Lima Dragline 130'—5 Yard 54-B Bucyrus-Erie Standard 2½ Yd. Shovel

1055 P&H 21/2 Yd. Dragline 1201 Lima Standard 21/2 Yd.

621-S Page Diesel Drag 135'- 6 Yd. 38-B Bucyrus-Erie Shovel & Crane 1600 P&H Standard Electric

Shovel 58-BH Joy Diesel Rotary Drill 4500 Standard Shovel Attach. TD14A Int. 21/4 Yd. Front End Loader

21/2 Yd. Page Drag Bucket

FRANK FAMALETTE EQUIPMENT CO. P. O. Box 325 Hazleton, Pa. GL 5-4708

BUCYRUS-ERIE 7-W DRAGLINE

BUCYRUS-ERIE 7-W DRAGLINE

140 ft. boom, 8 yd. bucket

Several 3' SYMONS cones. 84 x 66 jaw crusher.

Pioneer 54 x 24 double roll. 5360 Impactor.

6 x 14 rod mill. 4500 Manitewec shovel.

CRUSHING EQUIPMENT: Jaw Crushers - Rolls

- Cones - Gyrateries - Rod, Ball & Tube

Mills - Hammermills - Impactors - Portable

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Bins - Bucket Elevators - Classifiers - Compressors - Conveyors - Cranes - Derricks
Drills - Dump Cars - Engines - Feeders
Generators - Hoists - Kilns & Dryers - Locomotives - Motors - Pumps - Screens - Shovels

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- Weightemeters.

Located in All Parts of the Country.

STANLEY B. TROYER FOUIPMENT CO.

Bax 97 Phone 500 Crosby, Minnesota

Phone 500 Crosby, Minnesota

FOR SALE

Draglines and Cranes

2400 Lima Dragline, 130', 5 yd. 2400 Lima Dragline, 130', 5 yd. 1201 Lima Dragline, 85', 5 yd. 955 P&H Dragline, 90', 2½ yd. 54-B Bucyrus Erie Drag, 85', 2½ yd. 3500 Manitowoc Drag, 85', 2½ yd. 903 Osgood Dragline, 70', 2 yd. 802 & 604 Lima Cranes 3000-B & 3500 Manitowoc Cranes

Shovels and Combinations

1055 P&H 3½ yd. Standard Shovel 1201 Lima 3½ yd. Standard Shovel 1201 Lima Comb. Shovel-Crane 955 P&H 2½ yd. Standard Shovel 955 P&H 2½ yd, Standard Shovel 80-D Northwest 2½ yd, Shovel 802 Lima Comb. H. L. Shovel-Drag 51-B Bucyrus-Erie 2 yd, Shovel 44 Lima 1 yard Backhoe 25 Northwest Comb. Shovel-Drag Unit 1020 ¾ yard Shovel 34 Lima ¾ yard Shovel

Truck Cranes, Euclids, Drills, etc.

255 P&H Truck Cranes MC-425 Lorain Truck Cranes MC-425 Lorain Truck Cranes
22-8 Bucyrus-Erie Truck Cranes
LC-90 Link Belt Speeder T.C.
MC-414 Lorain Truck Crane
Euclid Trucks—27FD, 86FD, 2FD, 82FD,
36FD, 8TD, 63TD, 59TD, 60TD, 4-FFD
600 Reich Heavy Truck Mounted Rotary Air Drills 58-BH Joy Champion Rotary Air Drills 42-T, 29-T & 27-T Well Drills Davey Rotary Truck Air Drills Mayhew Rotary Truck Air Drill Garwood, LeTourneau, Caterpillar, Euclid and Bucyrus-Erie Scrapers Caterpillar & Allis-Chalmers Dozers, Front End Loaders, Graders International Bulldozers Shovel, Drag, Crane & Backhoe Attach.
Drag & Dipper Buckets for most makes and models

FRANK SWABB EQUIPMENT CO., INC.

313 Haxleton Nat'l Bank Bldg. GLadstone 5-3658 Haxleton, Pa.

TRANSIT MIXERS

4-Jaeger 41/2 yard High Discharge. Mounted on Mack Tandems, 70% Tires, 47' to 49'\$2600 ea.

HEAVY DUTY POWER MACHINERY, INC.

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CLEARING HOUSE ADS **BRING RESULTS**

SPECIAL CONSTRUCTION EQUIPMENT FOR SALE

Granes - Water Derrick Barge - Work Barges - Tug - Drills - Compressors - etc.

Located at Charleston, South Carolina

Officials, LAND
Thew-Lorain Meteorane, Medel MC-425, Serial No. 27866. New July 1956—one project. Excellent Condition. Thew-Lorain Meteorane, Micolei MC-25, Serial No. 28431. New Sept. 1956—one project. Excellent Condition. Thew-Lorain Crawley, Medel L-56K6, Serial No. 27886. New June 1969—one project. Excellent Condition. Thew-Lorain Crawley, Medel L-56K6, Serial No. 27886. New June 1969—one project. Excellent Condition. Thew-Lorain Grawley, Medel St, Serial No. 28912. Very Good Condition.

CRANE, WATER

Derrick Barge 80' x 44' x 6', Mounted with Clyds Equipment. Manufactured by Wiley Construction Co., #45. Nover used. New March 1957.

3-Carso, Steel Back, 80' x 50' x 5', Wiley Construction Co. Serial Nos. 110, 111, 112. Never Used. New Feb. 1957.

"Connie", Registry No. 289818, 170 H.P. Buda Diesel Engine No. 1879. Length 43', Beam 11', Draft 5'. Re-conditioned Oct. 1938. Not Used Since Reconditioning.

Located at Reading, Pennsylvania

COMPRESSORS

2-Schramm 600 C.F.M. Wheel and Spring Mounted. Serial Nos. 850198 (New April 1955) and 850253. (New July 1956). Ex-cellent Condition.

DRILLS

Joy, Model 225 Blast Hole Type, Serial No. 1821, Mounted on International Model HFD-192 Truck. New Aug. 1988. Excellent Coulities

TRACTOR-TRAILER

1956 G.M.C. Model DW-665 Tractor, Serial No. X1957, with Birmingham 839 FLR Trailer No. T835 and Trailing Bolly No. T7011.

Write - Wire - Call For Details and Price

Phone: Reading, Pa.

MANU-MINE RESEARCH & DEVELOPMENT CO.

P. O. BOX 167

READING, PENNSYLVANIA

FOR RENT OR SALE

- 3—Gar Wood 625 Scrapers, 25-yard capacity
- 4—Caterpillar D-8 Tractors with Allis-Chalmers 315 Scrapers Tractors are late serial numbers and in excellent condition. Scrapers are like new.

FEHRS TRACTOR & EQUIPMENT CO.

1809-11 Cuming Street, Omaha 2, Nebraska

FOR SALE OR LEASE

Lordin Moto-Crane - 254W - 171/2 Ton - 65 Ft. Boom - 1956 Model.

HD-5G Allis-Chalmers Loader - 11/4 Yard -Overhauled and it is in excellent condi-

Ford - Diesel - Tractor with Sherman Major Backhoe - Front End Loader - 1956 Model.

Jusque 125 Air Compressor with Buster, Air Spade, Tampers and Hose. New condi-tion.

John Deere Dozer - %420 - 7½ Ft. Angle Blade - It is a 1958 Model.

Dump Trucks - 1953 Chevrolet, 1955 Dodge, 1956 C.O.E. Chevrolet - All L.W.B. and

Butfalo-Springfield Tandem Roller KT-7 - & Ton - Excellent condition.

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Highest dollar value paid for new and used trucks and all kinds of used equipment. All types of truck equipment bought and sold, including war surplus.

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BILL FISHEL **Vandeventer Auto Sales**

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FOR SALE-

- 1-Allis-Chalmers Mdl. AD4 Grad-er with GMC diesel engine and scarifier
- Hough 1 yd. front end loader, dual rear tires, gasoline engine. (Tires are new.) 3,000
- -Adnun Blacktop Paver 1-Adnun Blacktop Paver. 3,000
- I-Diamond 3' x 10' triple deck 1.500
- -Link-Belt LS-50 comb. crane & backhoe, 35' boom, reconditioned throughout 8.500
- I-Link-Belt LS-85 Shovel, 34 yd. with Cat D-8800 Diesel Engine, reconditioned throughout 18,500
- I-Link-Belt LS 98 Shovel, Cat D-318 Diesel Engine, 20 mos. old 25,000
- 2-Model 21 Palace office Trailers, practically new with all conveniences ... 1,100
- 2-LeTourneau Super "C" Tournapulls in operating condition.
- -Cedarapids 18x36 Jaw Crusher, factory rebuilt & guaranteed, with 3x12 Cedarapids heavy 9,000 duty apron feeder

All Above Equipment In Good Operating Condition.

WILSON MACHINERY & SUPPLY CO.

Lexington, Ky. - Phone: 3-1455

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4 INTERNATIONAL PAYSCRAPERS Model 2T-75-15-20 Yd. Capacity All the latest improvements

1 INTERNATIONAL TD-24 Pusher-Torque Converter

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DOW & COMPANY, INC.

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Fire Engine Trucks—One 1941 and two 1942 Seagrave—all 750 gallon 6 P.M. pumpers. 300 gallon booster tanks. Geverament sur-plus. Low mileage. Reasonable.

W. ACKERLUND 2227 OAK ST. RIVER GROVE, ILL. Phone GLadstone 3-2284

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34-E Double Drum A-1 Condition

Current Model \$20,000.00 F.O.B.

SHERWOOD EQUIPMENT CO., Independence, Kans.

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prior sale, located in our yard only fiv excellent condition, ready for work and SOME MACHINES NEVER WORKED

CRAWLER CRANES

| BAY CITY 20 #5179 with Hercules JXC gasoline motor, 30' 2 piece boom, 36 yard capacity | \$ 5,500.00 | 00 00 u |
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| BAY CITY 37 #3097 with IHC UD-14 diesel motor 35' boom and fairleads, 34 yard | | |
| capacity | 9,500.00 | 2 22 . |
| line motor, backhoe and shovel front, 3/s yard capacity | 6,500.00 | L |
| B-E 15-B #33264, Chrysler Industrial 8 cylinder motor and backhoe | 8,500.00 | - |
| osgood 200 #4334, Chrysler Industrial 8 cylinder, 30' boom, ½ yard | 4,000.00 | F |
| OSGOOD 200 #4226, Buda 6 cylinder gas, 30' boom, 1/2 yard, unused | 4,000.00 | 1 |
| OSGOOD 50 #5907, Buda 6 cylinder gas, backhoe 3/a yard | 5,000.00 | 1 |
| OSGOOD 705 #3549, 1 yard, Buda Diesel, UNUSED OSGOOD 800 #3411, 11/2 Yard, Cai | 17,500.00 | |
| D-13000, 50' boom, 600 hrs | 20,000.00 | - |
| diesel 35' boom, 1 yard, used 2200 hrs. LINK-BELT LS-50 #5197. Buda gasoline | 15,000.00 | |
| 6 cylinder, 30' boom | 5,500.00 | 1 |
| boomLINK-BELT LS-75 Cat 4600, Baskhoe | 9,500.00 | |
| B-E 22B #97886, Cat. 318 diesel, drag line. Rebuilt, excellent | | 1 |
| P&H 255 #12443, Buda Diesel, showel from 34 yd. Used only 2 seasons. Excel | | 1 |
| B-E 22B #73068. Cat. 318 Diesel, 36 yard shovelfront. Canadian duty paid. | | - |
| Excel | 14,000.00 | |

| ATTACHMENTS - ARMY SURPL | US |
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| BAY CITY 20 Hoe Dipper, Sticks. Unused | 300.00 |
| BAY CITY 20 Shovel Front, Unused | 500.00 |
| BROWNING T-15-C Craneboom Tip 13'. | 450.00 |
| Unused | 450.00 |
| BUCYRUS-ERIE 37B Shovel Front | 2,500.00 |
| BUCYRUS-ERIE 378 Craneboom 45'. Unused IMA 34 Shovel Front. Unused | 1,000.00 |
| LIMA 1201 Jibs and Harness, Each, unused | 750.00 |
| ORAIN 41 Backhoe | 950.00 |
| NORTHWEST 25 Shovel Front, Unused | 1,750.00 |
| NORTHWEST 8 Craneboom 50'. Unused | 1,000.00 |
| P&H 255 Craneboom 30' | 900.00 |
| LIMA 1001 Dragline Boom. Unused | 1,750.00 |
| MARION 342 Craneboom 35'. Unused | 1,000.00 |
| MANITOWOC 2000B Craneboom 40' | 1,200.00 |
| B-E 37B Fairleads. Good | 500.00 |
| B-E 44B Fairleads. Unused | 500.00 |
| Manitowoc 3000 Fairleads, Unused | 700.00 |
| B-E 22B Craneboom | 900.00 |
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| TRUCK CRANES | |
| LORAIN MC-3 #13787 mounted on factory | |

| | CRAWLER TRACTORS | |
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| 0 | CATERPILLAR D-4 #2T7397, Bucket Load- er, Hyster Winch, Bulldozer. Army Sur- | |
| | plus, 900 hours | 4,000.00 |
| 0 | Straight Dozer. Rebuilt - guaranteed CATERPILLAR D-6 #10A-426, Shovel-Load- | 9,500.00 |
| 0 0 | er. New 1954. Rebuilt - guaranteed | 14,000.00 |
| 0 | CAT. D-6. #5R3231 with LeT dozer & DDPC. 600 hours | 6,500.00 |
| 0 | CAT. D-7 #7M-9297 with angledozer & DDPUC. 1500 hours | 7,500.00 |
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| ō | BARBER-GREENE, 554 Coal Loader | |
| 0 | #48-77. Army surplus, unused | 3,000.00 |
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| 0 | hoist. Army unused. | 1,500.00 |
| 0 | LeROI 600 Air Compressor, Murphy diesel. | |
| 0 | Like new. Army surplus | 6,500.00 |
| | surplus, unused | 1,000.00 |
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1.000.00 9.500.00

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CLEVELAND 15, OHIO

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MAINCO DISTANCE EASURING WHEEL

THE MAINTENANCE CO., INC. Dept. "D", 453 W. 42nd St., N. Y. 36, N. Y.

FOR SALE

3-15 to 18 yard Wooldridge scrapers. Removed from self propelled units. Can be used as 4 wheeled scrapers, or two wheels on back of DW-10 or DW-15's. Each\$1500.00

E. G. PIPER

9515 Rush St. — El Monte, Calif. LUdiew 2-1574 — Gilbert 8-2627

FOR SALE

One Huber Road Maintainer. \$2,500.00

WEPCO EQUIPMENT CO. 3421 Independence Road VUIcan 3-9595 CLEVELAND, OHIO

FOR SALE

2 - LORAIN MOTOCRANES

3/4 cubic yard, Model 416, 20 tons capacity, Front and Rear wheel drives, Hercules 6 cylinder engine in truck unit, Waukesha 6 cylinder engine in crane unit.

Excellent Running Condition

Ralph R. Brumel

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Dragshovel attachment for Lorain Model 41

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| 1 Caterpillar Dozer, D6 | 1950 SIZE ZZ X 44 |
| HD-5 End Loader, A-C | 1954 |
| 1 Welder on rubber | 1955 |
| 1 International Dump Truck | 1954 |
| 1 Ford Dump Truck | 1952 |
| 1 Reo Dump Truck | 1934 |
| 1 Arc Welder | 1952 1952 |
| 1 Steel Bin and one 3/4 Screen | 1954 |
| 1 Set of Howe Scales | 1951 Weighs 24 tons |
| Scale House and Office Equipment | 1951 Weight 24 tons |
| Machine Shed and one lot of Tools | 1951 |
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| One 29 Ft. Conveyor on rubber | 1947 20 inch belt with motors |
| | 1947 20 inch belt with motors |
| One 16 Ft. Conveyor 2 Electric Motors, 5 H.P. | 1952 |
| 2 Briggs & Stratton Motors | 1954 |
| 1 A.C. Motor with sheave, 25 H.P. | 1953 |
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Lima Diesel Crane. Model 602. 11/2 yd. bucket and 30 ton crane capacity. 120 ft. boom, plus jib. Independent boom hoist. Ceneral Motors 174 HP diesel engine. Crawlers 16'10" long.

Price \$20,000 f.o.b. car.

WHISLER EQUIPMENT CO.

1906 Railway Exchange Bldg. St. Louis 1, Missouri

FOR SALE

-New, unused Blaw Knox Bulk Cement Plants. Model B.C.P.C. 300 barrel capacity. Complete in every detail, screws, bucket elevators, motor, etc. Still in crates. 60% of new price.

TESTA BROS., INC.

P. O. BOX 36, RICHMOND ROAD BEDFORD, OHIO



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| CATERPILLAR 12 Grader w/Scarifier | |
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| | |
| LeTOURNEAU LS Scraper, 8-11 yds | |
| LeTOURNEAU M Scraper, 6-8 yds | 1,250 |
| BUFFALO-SPRINGFIELD KT-16 Tandem | |
| Roller, 5-8 ton, hydraulic steering | 3.100 |
| BUFFALO-SPRINGFIELD KT-16B Tandem | |
| Roller, 5-8 ton, hydraulic steering | 4,100 |
| BUCYRUS S68 Scraper, 6-8 yds | 2,500 |
| NORTHWEST 25 Dragline, gas powered, | -/ |
| 40 (4 hours 3/ and | 3,500 |
| 40 ft. boom, 3/4 yd | 3,300 |
| NORTHWEST 25 Dragline, Caterpillar | |
| diesel power, 3/4 yd., 35' boom | 6,100 |
| GALION 8-12 ton Tondem Roller, Inter- | |
| national UD9 diesel power | 3.500 |
| CATERPILLAR D13000 Power Unit | 1,750 |
| CATERPILLAR D17000 Power Unit | 1.750 |
| | 1,730 |
| CUMMINS N.H.R.I.S. 300 H.P. diesel | |
| power unit, torque converter | 2,500 |
| HYSTER D4, D6, D7 and D8 Winches | |
| CARCO Model F Winch, complete | 750 |
| GALION 3 wheel, 10 ton Roller Hydraulic | |
| Steer | 2 750 |
| 31col | 4,130 |
| | |

Al Fishel Equipment Sales Co. JEfferson 5-4482 - 1318 No. Vandeventer Ave. ST. LOUIS 13, MISSOURI

LORAIN MOTO-CRANE Mod. 414

40' boom, Rudomatic Tagline, outriggers, screw jacks. Mtd. on factory carrier. 1950 machine - has had excellent care.

\$18,000.00

Subj. to inspec. & prior sale. Call Cypress 2-4800

H. O. PENN MACHINERY CO. INC. 140th Street & East River, New York 54, N.Y.



Excellent for bag loads, building block, tile, etc. 4000 lb. capacity, 10' mast and 10' extension. Has 1½ yd. scoop, forks, power steering and safety cab.

Phone Victoria 6000

Rapistan

of New York Inc. 2548 Elmwood Ave., Buffalo 17, N. Y.

FOR SALE-SAVE 35%

CONTINENTAL ENGINES
Brand new model B-427, 6 cyl., 130.8 h.p. at 2600 w/Elec. Starter & Generator complete from fan to bell housing incl. F.O.B. Phila. or Milwaukee—only \$650.00 in orig. crates.

GEST MOTORS 2925-27 Ridge Ave., Philadelphia 21, Pa.

GUARANTEED EQUIPMENT BUYS OUR BUY OF THE MONTH!

CEDARAPIDS MASTER TANDEM CRUSHING & SCREENING PLANT

Engine completely reconditioned. New roll shells, and jaws. All bets good. Powered by CAT D17000 Diesel Engine. This plant is in excellent condition and ready to work. \$52,500.00

CAT D8 Diesel Tracter
ZU series. Equipped with starter, lights, track roller guards, CAT No. 25 cable control unit and CAT 8S dozer. Rebuilt and carries a "Bonded Buy" warranty.
\$19,750.00

CAT 57 Diesel Tractor
3T series. Fully equipped with oil clutch,
CAT No. 25 CCU, CAT 75 dozer, lights,
starter and track roller guards. Completely
rebuilt- and sold with a "Bonded Buy
Warranty \$14,500.00

SPECIALI
2 - Steel faced tandem rollers. One Galion
8-12 ton and one Buffalo-Springfield 8-14
ton. Both units completely rebuilt.
Price, each \$6,000.00

Terms, Trades Available All Items FOB Rapid City and subject to prior sale.

Call or write or wire for any desired

WEST RIVER equipment

417 Pine St., Phone FI 2-4850 Rapid City, South Dakote

"CATERPILLAR Dealers
"CAT" and Caterpillar are Registered
Trademarks of the Caterpillar
Tractor Co.

FOR SALE

Cedarapids 3645 double impeller impact primary breaker unit complete with 3645 impact crusher, 36" x 14' heavy duty apron feeder, 36" under crusher conveyor, powered by Cat D337 power unit, all mounted on Tandem axle pneumatic tire chassis-\$55,000.00.

600" Gardner-Denver rotary compressor \$12,000.00.

Model DH 123J Gardner-Denver deep-hole wagen drill-\$5,000.00.

This primary crushing plant and drilling equipment has been used on one job only and was new late last year. It is in absolutely A-1 condition, ready to go to work immediately.

JAMES W. BELL CO., INC.

P. O. Box 550 Cedar Rapids, Iowa

HEAVY CONSTRUCTION EQUIPMENT FOR SALE. MUST BE SEEN TO BE APPRECIATED

TRACTORS

TRACTORS

Caterpillar D8 Serial Number 2U10751, oil clutch, heavy duty idlers, electric starter, 25CCU, crank case, guard, rock roller guards, brush guard, 8-8 dones blade, succellent condition.
Caterpillar D8 - Serial Number 2U1838, equipped with 25CCU, front push block, electric starter, an excellent tractor.
Caterpillar D7 Serial Number 2T8033, 25CCU, crank case guard, rock roller guards, heavy duty spring, 7-8 doser. This is a very good tractor.
Caterpillar D7 - 8/N 17A4346, equipped with 75CCU, crang case guard, rock roller guards.
7-8 doser, electric starter, excellent condition; just a few months oil d. Allis-Chalmers HD29, 8/N H4922, General Motors Engine Serial No. 653616, equipped with front push block foruse convertor. This tractor has been completely rescuditioned; one of sases used HD30 offered for sale for some time.

SCRAPERS

Caterpillar Model 79, Serial No. 3W51114, equipped with side boards; large tires, excellent rubber; a very good scraper.

Caterpillar Model 79, Berial No. 3W5336, equipped with side boards; large tires, excellent rubber excellent rubber excellent rubber excellents; the context of the contex

MOTOR PATROL

Caterpillar No. 12, Serial No. ST9879; just a few months old, equipped with power booster, large tires. Attachments available: Scarifer, Braden sloper.

TAMPING ROLLERS

Leffourneau Double Drum, Serial No. S 117, exceptionic condition. American Model MD96. Double Drum, S/N 106037C; very good condition.

DRAGLINES

AIR COMPRESSORS & TOOLS

JAEGER Model No. 198, 8/N C5387; equipped with hose real; very good condition.

JAEGER Model No. 125, 8/N C7999; equipped with hose real; excellent condition.

3 THOR Model 60 T Back Fill Tampers, like new.

3 THOR Rock drills; good condition.

ORD MAJOR Dissel Wheel tractor; hydraulic steering booster, 14-39 6 ply Firestone rear tires, 7-50-16, 8 ply front tires. Sherman Model SIAJSFM Hydraulic Loader, Serial No. 1085, equipped with % yard bucket with controlled dump, Sherman Model 54C4019FN Hydraulic Diager, S/N 13484, with 34 inch bucket; rubor 55%. This machine jest 6 months old;

ber 25%. This machine just 6 months our, used very little.

HOUGH Model HF Pay Leader, Berial No. 81418; two wheel drive. I cubbe yard 69 Inch hydraulic bucket; cab, electric windshield wiper; 13.09-24 Fauer tree, 8.25-29 front tree, 6 cylinder Hercules Gas Motor; good rubber; machine in

POWER UNIT

CATERPILLAR Model D17009, Serial No. 91-54198P; equipped with radiator, gas starting and enclosed dutch. Has been completely re-conditioned with new motor kit, bearings, crank shaft, etc. 250 HP at 1080 HPM, an excellent

mant, suc; zeo Mi at 1000 HPM, an carollent buy. KATOLIGHT PLANT Model 57MPE4, Serial No. 31243-1, 40 KW, 80 KVA, 120/208 Voit, 60 cyclo, 1800 RPM, revolving field type, 2 phase, 4 wire, with electric starter, water cooled. Powered by EVD 24 Chrysler Engine for the cooled by EVD 24 Chrysler Engine for the cooled by EVD 24 Chrysler Engine to the cooled by EVD 24 Chrysler Engine to the cooled by EVD 24 Chrysler Engine to the cooled by EVD 24 Chrysler Evg Later and the cooled by the cooled by the cooled the water anterty device, bood, fuel tank & muffler, Steel base mounted. 2 - 60 Amp. 3-pole recep-tacles less bor w/S-pole plug; 1 - 180 Amp. 3-pole receptacle w/3-pole plug.

Call J-K CONSTRUCTION CO. MILTON, IOWA

Ph. 41J

or

MARTIN-ROASA TRACTOR & EQUIPMENT CO. American Bldg., Phone EMpire 2-1145 Cedar Rapids, Iowa



King-Size Kolman 42" Model 101 Loads 20-Ton Trucks in Less than a Minute

From three to four crawler tractors are kept busy feeding this hungry 50'x42" Kolman 101 Conveyor-Screen Plant. It is shown equipped with dozer trap for dozer feeding. A complete line of other loading accessories is also available.

The 9'x54" Kolman screen can be folded under the conveyor without disassembly for ease in transportation. The plant can also be equipped with double or triple-deck screens.

Other exclusive features make it the most complete and practical unit of its kind available. Features are available on smaller Kolman plants of same design. Write for literature and

KOLMAN Manufacturing Co. 5200 W. 12th Sioux Falls, S. D.

FOR SALE

Allis Chalmers Model TS200 S/N T200-2153, traction tread tires, bucket seat & cab.

Cleveland Model Trencher S/N 3446, with electric starter, air cleaner, oil filter, deep oil pan, 10" smooth crawler pads.

Allis Chalmers Model "D" Grader S/N 3399, with scarifier leaning front seat. Bakers Model SFD 96 Sheepsfoot roller (double)

S/N 237. 1953 G.M.C. 6 yd. dump truck, with 2 speed rear axle.

1949 Chev. COE, Engine #GBA 39525, with lowboy trailer.

3" Water Pump (new in 1956).

D-8 Dozer, S/N 2U19042 SP with 8A Dozer S/N 7A4584 #25DDPUC S/N 9D23144.

1950 La Plante Cheate Wagon, S/N C-314-488, 12-15-C.Y. Capacity.

The above equipment is in excellent condition, and is located at Pentiac, Michigan.

For full particulars write Eugene Coe, 1754 Opdyke Rd., Pontiac, Michigan, or call FEderal 2-22965.

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226 Berry Pkwy. Tolcott 3-4927 PARK RIDGE, ILLINOIS

FOR SALE

1953 White Steering Pusher Tandem

1954 Mack B-42 Tandem 10 yard Dump 1953 Mack A-40 Tandem 10 yard Dump

1956 (2) Fruehauf 35' Sliding Tandem **Dura-Van Trailers**

1952 Dorsey Tandem Low-Boy Trailer Low-Boy 16 Wheel Tandem Trailer

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STEEL SHEET PILING

380 pcs. BETH. 5P4 — 20' to 40' 462 pcs. AP3 — 21' 25' and 30' 377 pcs. M116 — 25', 29' and 30' 307 pcs. MZ72 — 44' 416 pcs. ZP32 — 25', 31' and 50' 1300 pcs. MP101 — 45' and 60' 198 pcs. BETH. ZP32 — 62' 452 pcs. Beth DP2—30', 50' and 60'

15 x 24 PORTABLE CRUSHER MODEL 15 A DIAMOND CRUSHING PLANT, 15 x 24 JAW CRUSHER 30" x 8" APRON FEEDER, HOPPER 24" x 26" CONVEYOR, GASOLINE ENGINE ON PNEUMATIC TIRES

R. C. STANHOPE, INC. 60 E. 42nd St., New York 17, N. Y.

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BANTAM—"M-49"—36 yd. Hoe, mounted Chevrolet Tandem Truck.

MARION—"331"—¾ yd. Shovel or Dragline. BYERS—"83"— Used ¾ yd. Crone or Drag-

INSLEY-"K-12"-1/2 yd. Trench Hoe, Crone

or Dragline.

LINK-BELT—Shovel Attachment complete for LS-85 (¾ yd.)

Loaders

CATERPILLAR-"D-6"-Diesel Tractor w/Hi-Lift Cable Traxcavator, 1950 model in fine

BARBER-GREENE-"545W"-Used Rubber-Tired

Miscellaneous

ALLIS-CHALMERS—"HD-5G" Used Diesel Trac-tor w/Tractomotive Front End Loader. MICHIGAN—"123A"—Used 2½ yd. Diesel Tractor-Shovel, 2½ years old. GRUENDLER—"1024" — Roller Bearing Jaw

Crusher.

PARSONS—"21"—Ladder-Type Crawler-Mounted Trenching Machine, digs 9' deep.

PETTIBONE-WOOD—"820A" — New Windrow
Proportioner. Reduced for quick sale.

PETTIBONE-WOOD—"620"—Used Preparizer,
G-M Power, Diesel. Will rent or sell.

BAYPORT—23 yd.—New Aggregate Bins.

AHM—15. Ton.—Illed Low Rod Seep! Trailor.

JAHN-15-Ton-Used Low Bed Semi Trailer,

JAEGER-3 yd.-(41/4 yd. Agitator) Hi-Dis-charge mixer, 1945 model, mounted on 6-wheeler. Cheop.

NOTE: This Equipment Located in our Yard

EIGHMY EQUIPMENT COMPANY

120 S. Pierpont Phone 4-6706 ROCKFORD, ILLINOIS

Bucyrus-Erie Model 51-B, 2 Yd. Shovels Crane or Dragline Combination

FOR RENT OR SALE

Le Tourneau Model B Tournapulis, Year 1956, Capacity 18 to 25 Yds.

FOR SALE

FOR SALE

4—Le Tourneau Model C Roadsters, Year
1852, Capacity 11 to 14 Yds.
2—La Piante Choate Model T5-200's, Year
1851, Capacity 10 to 13 Yds.
1—Allis-Chaimers Model T5-300, New 1229-52, Capacity 14 to 18 Yds.
1—P. 6 H. Soil Stabilizer, Model TMDT-16
1—Michigan Truck Crame, Model TMDT-16
Full Cwt, Outriggers, Capacity 12½
Tons
1—Ransome 34-E, Dual Drum Paver, Ser.
No. 15122 With 800 Gal. Water Tank.
Gardner Denver Airtrack 6 mo, old

EXCEPTIONAL CONDITION-EXCELLENT BUY

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FOR SALE - ROAD FORMS

9" x 8" Metaform Road Forms 3400 ft., 1000 ft. with keyway.

Delaney Equipment Company 19150 John R. Street, Detroit 3, Mich.

FOR SALE

3 La Plante Choate TS-300 Scrapers

(1) Ser. #T-300 BU 773, with Buda Model 6DAS844 ENGINE #57850, B/M #D6016D, Scraper Ser. #S-300-771.

Ser. #T-300 BU 593, with Buda Model 6DAS844 ENGINE #50844, B/M #6016A, Scraper Ser. #S-300-591.

(1) Ser. #T-300 BU 313 with Buda Model 6DCS844 ENGINE #50264, B/M #4310S, Scraper Ser. #S-300-313.

Rocky Mountain Machinery Co.

1485 South 2nd West SALT LAKE CITY, UTAH

Phone: HUNTER 4-4378

FOR SALE

1-Hetherington-Berner, Model H-301-B Moto Paver 1955 Machine **Excellent Condition**

Price: \$16,500.00

Can be seen at 1640 Fourth Ave., Charleston, West Virginia

V. N. GREEN & COMPANY, Inc.

P.O. Box 2814, Charleston, W. Va.

Phone DI 25-893

FOR SALE

EUCLID TRUCKS — Rear and Bottom

SHOVELS, DRAGLINES-all sizes, makes, crawler and walking type, diesel and electric powered.

WELL DRILLS-Rotary and Churn type. TRUCK CRANE

CATERPILLAR Dozers & Graders ROGERS 35 Ton LOWBED TRAILER

Spare parts for 1208 & 9W Bucyrus-Erie

"Other Equipment Available not Listed Above"

WILLIAM LUBRECHT, III

Construction Equipment 311 W. Diamond Ave. - Hazleton, Pa. Phone: Gladstone 5-4041 or 5-0253

FOR SALE

HD11 A-C Tractor S/N 77723 W/11BDC Baker Dozer Blade, 261 Gar Wood DBL. Drum Cable Control. I year old.

W/TS11 Tractor Shovel, 21/4 Cu. Yd. Tip Back Bucket, Hydraulic Controlled.

10 months old. HD16 A-C Trector W/Cable Controlled Baker Dozer Blade, AC75 PCU.

T\$200 Allis-Chalmers Tractor Scraper Unit. S/N T200-2343 capacity 10 yds. Struck, 13 yds. heaped. 16 months old.

The above equipment is in excellent condition and is priced to sell. For full particulars, write or call

B. C. GAMMON

P. O. Box 233 Phone 500 Cairo, Illinois

FOR SALE

The following equipment located in New York: 1—1955 Insley Backhoe, S/N 11061.

-TD-14 Diesel Crawler Tractor with Side Boom, S/N 24383.

-Hough Payloader, S/N 82197.

1-95 Cleveland Trencher, S/N 3354.

The following equipment located near Chicago -1955 Cleveland Trencher, Model 140

-S/N 5782.

-Model 95 Cleveland Trencher, S/N -Rodgers 35 Ton Low-Boy with Inter-

national Tractor - Tires 90%. All of this equipment is in excellent shape and ready to go.

Lemont Stone & Material Co.

P. O. Box 11 - Lemont, Illinois Phone: Chicago, Bishop 2-2075; Lemont 1130

New Steel Pipe - Large O.D.

Immediate Shipment rom Warehouse Stock

1,000 ft. — 16" O.D. — .250 wall 1,000 ft. — 16" O.D. — .375 wall 2,000 ft. — 20" O.D. — .375 wall 1,000 ft. — 20" O.D. — .375 wall 1,000 ft. — 20" O.D. — .375 wall 1,000 ft. — 20" O.D. — .437 wall 3,000 ft. — 26" O.D. — .281 wall

Random 20' to 40' lengths Suitable for Irrigation, Well Casing and Road Casing Inquiries invited

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Phone, Write or Wire

ASPHALT PLANT

Barber-Greene Model 848 portable with mixer, 4 bin gradation control unit, dryer, dust cel-lector & bucket elevators, International Diesal power units, excellent condition. New 1954. THE McLEAN COMPANY

3525 Lakeside Ave. Cleveland, Ohio Tel. Express 1-8171

Manufacturers' Literature

Guard Rail Booklet

Design features, engineering data, erection instructions and specifications for USF barrier-beam and Universalbeam guard rails are presented in a new illustrated 12-page bulletin re-leased by United Steel Fabricators, Inc., Wooster, Ohio. The bulletin also contains information on USF structural-plate bridge flooring for new and existing highway bridges, and data on leave-in-place steel forms for concrete bridge decks.

For more details circle 149 an Enclosed Return Postal Card.

Bituminous Mixer

A new bulletin HH-28 on its Model 700 Trail-O-Patcher is available from Littleford Bros., Inc., 453 E. Pearl St., Dept. HH-28, Cincinnati 2, Ohio. The bulletin gives facts and diagrams on the re-designed Model 700 Trail-O-Patcher. The patcher is a completely self-contained unit which has twin pugmills for drying and mixing the aggregate. It is designed to produce economically hot or cold bituminous mixes, and will produce up to 7 tons of hot mix or 12 tons of cold mix per

hour (depending on the moisture content and methods of loading the aggre-

For more details circle 150 on Enclosed Return Postal Card.

Concrete Saws, Joint Sealers

A new 1957 10-page booklet, No. 1032, available from Clipper Manufacturing Co., 2800 Warwick, Suite 250, Kansas City 8, Mo., features all Clipper products including the new a H. P. "Supermatic" masonry saw. Other Clipper products covered include the "Select-A-Notch" masonry saw, Clipper concrete saws, diamond, break-resistant and abrasive blades, joint sealers, both hot pour and cold applied. Details of Clipper's mixed specification savings plan on all types of blades are also

For more details circle 151 on Enclosed Return Postal Card.

Diesel Crawler Tractor

A new fold-out specification sheet (MS-1192) covering the Allis-Chalmers HD-16 diesel powered crawler tractor is available from the Construction Machinery division, Allis-Chalmers Manufacturing Co., Milwaukee, Wis. It features a cutaway view of the tractor that shows both the gear type and the hydraulic torque converter drive transmissions, and many of the mechanical, design and construction highlights of the HD-16. The torque converter drive, which Allis-Chalmers introduced into the crawler tractor field in 1940, is also reviewed along with its use advantages.

> For more details circle 152 on Enclosed Return Postal Card.

Wheel Type Ditcher

An 8 page, 2-color folder on its new model 774 wheel ditcher has been issued by Barber-Greene Co., 400 N. Highland Ave., Aurora, Ill. The model 774 is the company's first offering to contractors, pipeliners and utilities users in the wheel ditcher field, complementing their line of vertical boom and ladder type machines. The fea-





with Cardinal ABRASIVE or DIAMOND BLADES

This is a promise, not a rumor! CARDINAL makes ABRASIVE CONCRETE CUTTING BLADES that are break and wear resistant . . . that actually outperform the best of the standard diamond blades, at a fraction of the cost! And CARDINAL also makes CONCRETE CUTTING DIAMOND

BLADES with "king size" segments, maximum diamond concentration, and hi-retention TUNGSTEN CARBIDE bond-

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144 BURNSIDE ST., PHILA. 27, PA., U. S. A. WORLD'S LARGEST MANUFACTURERS OF ABRASIVE AND DIAMOND MASONRY BLADES AND SAWS . DISTRIBUTORS IN PRINCIPAL CITIES

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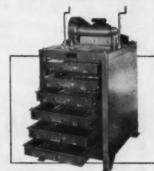
- No finer accommodations anywhere-400 rooms and
- · Radio in every room TV and air-conditioning available.
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Wm. A. Atkins, President



Illinois, Georgia and McCrea Streets

CONTROL SIZING FAST, **ACCURATELY** AT THE JOB SITE



with the GILSON TESTING SCREEN

Be sure of accurate sizecontrol of road aggregates by the method the entire industry respects: GILSON Screen Testing.

Operating at the job site or field lab, the GILSON Screen takes a cubic-foot sample of coarse aggregate, makes two to seven separations simultaneously, in five minutes or less per complete test. The **GILSON Mechanical Testing** Screen is built for rough use, requires practically no maintenance, is moderate in cost.

A sand attachment is available for handling 8-inch sieves.

THE GILSON **TESTING SCREEN** IS THE STANDARD SIZING CONTROL OF THE INDUSTRY.

Write for full information, or call Malinta 592.

GILSON SCREEN CO. MALINTA OHIO

new brochure.

For more details circle 153 on Enclosed Return Postal Card.

Mine Locomotives, Mine Cars

New 4-page bulletin No. 18-b de-scribing Mayo mine locomotives, mine cars and car passers is available from Mayo Tunnel and Mine Equipment, Lancaster, Pa. Draw bar pull in pounds is given for each of the Mayo locomo-tives which are powered either by compressed air or diesel engines. Seven different types and sizes of Mayo mine cars are also fully illustrated and described as well as sketches showing the operation of the Mayo passer.

> For more details circle 154 on Enclosed Return Postal Card.

Selector for Diamond Blades

A new "pocket" guide for the selec-tion of proper diamond blade for cut-ting concrete and masonry materials has been announced by Consolidated Diamond Tool, 32 Yonkers Ave., Yonkers, N. Y. The new selector makes possible a visual method of choosing a diamond blade according to its efficiency range.

For more details circle 155 on Enclosed Return Postal Card.

Conveyor Idler Bulletin

A new 8-page bulletin (No. 119), available from C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio, describes the complete line of conveyor idlers including troughing, flat, self-aligning, rubber disc and return designs; 4 in., 5 in. and 6 in. diameter rolls; describes the construction, lists standard sizes, dimensions, weights, etc.

For more details circle 156 on Enclosed Return Postal Card.

Concrete Forms Brochure

A new brochure issued by Universal Form Clamp Co., 1238 N. Kostner Ave., Chicago 51, Ill., cites pictures of the Uni-Form panel system of forming concrete. On the job photos are contained, together with a list of 500 contractors using these forms.

For more details circle 157 on Enclosed Return Postal Card.

NOTICE

Mr. Charles M. Noble, Secretary to Governor C. William O'Heill of Ohio, announces that Ohio will Edge Line Point some 7500 miles of rural state highways on a contract painting basis. The contracts a contract painting basis. The will require completion in 1957.

Prospective bidders for this Edge Paint-ing work must make application to the Department for prequalification at least ten (10) days before the date set to open bids. Information pertaining thereto and prequalifying blanks may be obtained from Highway Credit Examiner, Ohio Department of Highways, Room 246, 450 East Town 5t., Columbus 15, Ohio.

tures of the model 774 are all described in diagrams and photographs in the



NEW 36-page educational text-book

catalog, illustrated by 85 photographs, diagrams and charts, covers all phases of concrete paving plant operation for the benefit of highway and airport contractors and engineers. It features:

- theoretical plant and paver production tables
- formula for estimating truck requirements
- plan views of plant sites
- pictorial "tours" through typical 1, 2 and 3-step plants
- latest developments in plant automation
- graphic weight-recording systems
- comprehensive bin-selection guide with complete data on capacities, heights, weights, charging methods
- ground space requirements for aggregate stockpiles
- other sections discuss cement storage, aggregate-handling systems, batching methods, etc.

This technical catalog makes a valuable addition to your engineering reference files. It's yours for the asking — at no obligation, of course,

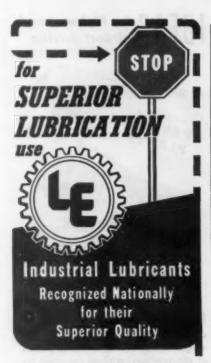


C. S. JOHNSON COMPANY CHAMPAIGN, ILLINOIS

| Send 36-pag | e concrete paving plants catalog. | |
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| 27000RS | (Koehring Subsidiary) | 1 |
| AND ADDRESS. | | |

. . . for more details circle 273 on enclosed return postal card

. . . for more details circle 324 on enclosed return postal card



LE #1020 HIGH TEMPERATURE LUBRICANT is built "tough" to give your equipment the full protection it needs. Critical conditions of high temperatures, speed, load, vibration and long continuous opertion challenge the basic qualities of any lubricant. LE # 1020 is engineered to cope with all of these-it provides superior lubrication under the most adverse conditions - will not melt or sling off under high temperature - resists heavy load "pounding" and vibration — maintains a tough durable film at all times.

LE #509 (SAE 90) and #510 (SAE 140) UNIVERSAL GEAR LUBRICANTS are manufactured from the same high quality paraffin base blending stocks as the finest aviation grade engine oils. Their rich, full-bodied film resists rupturing under severe shock loads—gear cases run cooler — consumption is held to an absolute minimum - and acid corrosion of expensive gears and bearings is virtually eliminated.

IT PAYS TO USE THE BEST!

For additional information on LE lubricants, write, wire or call -

INDUSTRIAL LUBRICANTS FOR INDUSTRIAL EQUIPMENT

LUBRICATION ENGINEERS. INC

FORT WORTH, TEXAS

With the Manufacturers and Distributors

ARMSTRONG EQUIPMENT Co. 4601 First Ave. North, Birmingham, Ala., has been appointed to sell and service Michigan tractor shovels and excavator cranes, products of the Construction Machinery Division of Clark Equipment Co., Benton Harbor, Mich. The distributor will handle all counties in the state of Alabama and the Florida counties west of the Choctawhatchee

BOSTON WOVEN HOSE & RUBBER CO., Boston, Mass., has been merged into American Biltrite Rubber Co., Inc. The activities of Boston Woven Hose are being carried on without interruption through a separate division of American Biltrite known as the Boston Woven Hose & Rubber Co. division. with the former officers of Boston Woven Hose continuing as officers of this division.

BUCYRUS-ERIE Co., South Milwaukee, Wis., has appointed Eastern Tractor & Equipment Co., 46 Cove St., Portland, Me., as distributor of excavators and cranes in the state of Maine.

B. W. THORPE, former district manager of the Florida territory, has been appointed sales manager of power crane and shovel division of Harnischfeger Corp., Milwaukee, Wis. J. E. Laffey, excavator salesman at the Boston office, succeeds Thorpe as district manager of the Florida territory.

FRANK G. HOUGH, founder and chairman of the board of Frank G. Hough Co., Libertyville, Ill., has announced his retirement. The stock of Frank G. Hough Co. was purchased in 1952 by International Harvester Co., and it is operated as a wholly owned subsidiary.

GRANCO STEEL PRODUCTS Co., St. Louis, Mo., has opened a district sales office in Houston, Tex. Frank E. Diekneite, who has been a sales engineer in Granco's Chicago office, has been appointed district sales manager for the new Houston office. The address is Room 137, 4101 San Jacinto St.

BABOO RAM ("BOB") TEREE has been elected vice-president in charge of engineering and manufacturing of Greer Hydraulics, Inc., Jamaica, N. Y. Mr. Teree was formerly chief engineer and manager of engineering and manufacturing of the company.

Two NEW DISTRIBUTORS have been appointed by McGowan Pump division of Leyman Manufacturing Corp., Cincinnati, Ohio, to carry the company's complete line of McGowan contractors' pumps.

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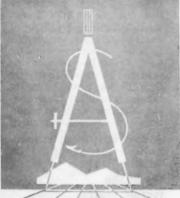
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ROADS AND STREETS, July, 1957

Inc., 30303 Plymouth Road, Livonia. Mich., will distribute McGowan products in the eastern half of Michigan's lower peninsula. Public Works Equipment Co., Inc., 786 University Ave., St. Paul., Minn., will cover North Dakota and Minnesota for McGowan. This firm's branch office at Clintonville, Wis., will cover the state of Wisconsin outside the immediate Milwaukee area.

FERN CHIAPPETTA, formerly assistant wire rope engineer, has been appointed wire rope engineer for Macwhyte Co., Kenosha, Wis. He replaces William C. Russell who retired on May 1st after 34 years of service with Macwhyte Co. Chiappetta will be assisted in his new position by Fred E. Dykeman, who has been appointed fabricated products engineer, and by Vernon J. Young, who has been appointed junior product engineer.

THE CHICAGO OFFICE OF Blaw-Knox Co., Pittsburgh, is now located at 36 S. Wabash Ave. Midwest headquarters of the Chemical Plants division of Blaw-Knox, 180 N. Wabash Ave., will continue at that location.

JACQUE JONES has been elected president of Huber-Warco Co., Marion, O. His advancement from the post of executive vice president fills a vacancy created by the retirement of Don A. Howard who had been president since

1943. Mr, Jones had served as executive vice president since the former Huber Manufacturing Co. and the former W. A. Riddell Corp. of Bucyrus were combined two years ago.

ELMER H. FREDRICKSON has been named export sales manager of Austin-Western Works, Construction Equipment division, Baldwin-Lima-Hamilton Corp., Aurora, Ill. He succeeds Chester "Chet" Cotten, who has retired.

F. D. CUMMER & SON Co. has moved its general offices and warehouse to new quarters located at \$110 East 21 St., Cleveland 15, Ohio.

DON FRICKER has been appointed general supervisor, industrial advertising and sales promotion for J. I. Case Co., Racine, Wis. Prior to coming to Case, Fricker was an account executive with 'Western Advertising Agency of Racine and Chicago.

J. V. S. NORTON has been appointed assistant export sales manager of Bucyrus-Erie Co., South Milwaukee, Wis. He has worked in the company's New York export sales department office since joining the company in 1945.

CHARLES L. DRISCOLL has been appointed chief engineer of Cleveland Formgrader Co., Avon, O.





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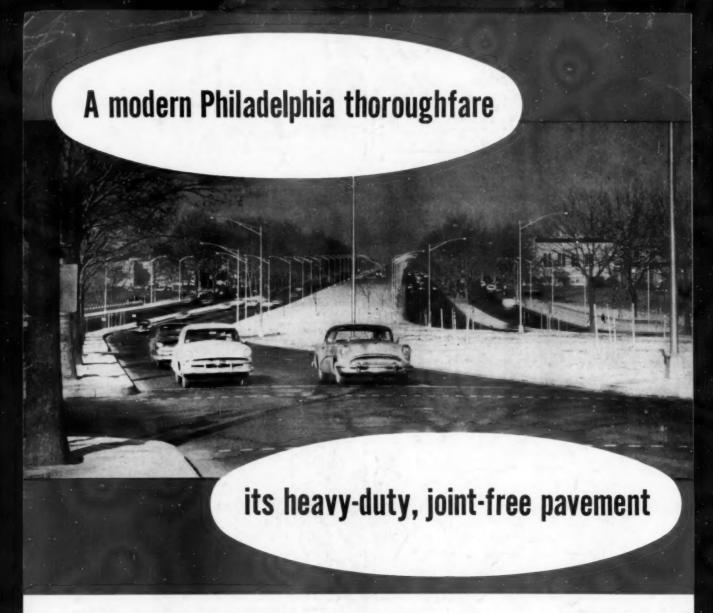


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